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PROGRESS IN POLLUTION PREVENTION

1997-1998



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Canada

Progress in Pollution Prevention 1997-1998

Annual Report of the Pollution Prevention Coordinating Committee

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Minister's Message

All Canadians, all industries and all levels of government share the responsibility of environmental stewardship. Only by working together on pollution prevention can we ensure that Canada's rich natural heritage is preserved for our children and grandchildren.

Minimizing or avoiding the creation of pollutants is a more cost-effective method of protecting the environment than treating pollutants, or cleaning them up after they have been created or released into the environment.

Progress in Pollution Prevention 1997-1998, our third annual report, profiles federal environmental success stories and initiatives from April 1997 to March 1998. The highlight of the past year was the tabling of a renewed *Canadian Environmental Protection Act*, which enshrines pollution prevention as the cornerstone of national efforts to protect human health and the environment.

The report also chronicles the many benefits that governments, industry and the Canadian public are reaping from our shared commitment to pollution prevention. Whether it's in the dental care sector, the oil and gas industry, agriculture or shipping, most sectors of the economy, large and small, are following the federal government's lead and embracing pollution prevention. Canada also has agreements in place with many foreign governments. Canadian exports of environmental technology produce jobs and economic spin-offs that create jobs in every region of the country. The bottom line is clear: pollution prevention is good for the economy and the environment.

It's a pleasure to recognize the efforts of individual Canadians, companies, industrial and community associations and non-governmental organizations for their environmental responsibility. I challenge all Canadians to develop new partnerships in their communities, and launch new initiatives to further advance pollution prevention. *Progress in Pollution Prevention 1997-1998* will help us learn by example and guide us to new levels of achievement in protecting the world that we live in.



A stylized, handwritten signature of Christine S. Stewart in black ink.

The Honourable
Christine S. Stewart
Minister of the Environment

"MY GOAL IS
to ensure that our
environment is the foundation
of good health and prosperity,
and a source of national
pride for all Canadians.
Reaching that goal has never
been more challenging
—or rewarding."

The Honourable
Christine S. Stewart
Minister of the Environment

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Executive Summary

Pollution Prevention — A Federal Strategy for Action is the Government of Canada's framework for advancing pollution prevention.

Endorsed by the federal ministers in June 1995, the pollution prevention strategy and action plan elaborates on government policy, and sets priorities for action based on five target sectors involving partnerships with other orders of government, the private sector and individual Canadians. By directing efforts to prevent pollution and waste before it is created, the federal strategy works towards the ultimate environmental goal of sustainable development.

This annual report, the third prepared by the federal Pollution Prevention Coordinating Committee, serves to inform Canadians, members of the international community and government officials of initiatives that are representative of the Government of Canada's progress in advancing pollution prevention and achieving the goals of the federal strategy for the fiscal year ending March 31, 1998.

Key Accomplishments

Progress in Pollution Prevention

1997-1998 shows that the Government of Canada is continuing to incorporate creative and effective pollution prevention solutions into its activities. Initiatives involving and challenging the private sector are gaining momentum and showing excellent results. The 1997-1998 report confirms that the Government of Canada is enabling and producing key environmental results.

Progress within the Federal Government

Significant progress in incorporating pollution prevention into federal legislation was attained with the March 1998 introduction to Parliament of legislation to amend and strengthen the *Canadian Environmental Protection Act*

(CEPA). The renewed Act, which will have pollution prevention as its guiding principle, includes provisions for pollution prevention planning for toxic substances and within federal operations. In addition, regulations emphasizing pollution prevention were introduced for diesel fuel, benzene in gasoline, and the registration of storage tanks for petroleum products on federal lands. Effective for the 1997 reporting year, the National Pollutant Release Inventory (NPRI) required facilities across Canada to provide qualitative information on their pollution prevention activities for NPRI-listed substances.

In the promotion of sustainable development, it is federal policy that special emphasis be placed on pollution prevention. A key step towards advancing pollution prevention has been the tabling of sustainable development strategies by federal departments and agencies with the House of Commons.

Federal agencies continued to update, develop and implement pollution prevention processes and practices. Transport Canada, Natural Resources Canada and Environment Canada announced Phase 2 of the Federal Smog Management Plan; and Environment Canada purchased "green power" for federal facilities in Alberta and saved \$623,000 in energy consumption through the Federal Buildings Initiative.

Progress with Other Governments

Partnerships between the federal government and other orders of government are key to achieving harmonized approaches to pollution

On the Internet view this report at:
www.ec.gc.ca/p2progress

prevention and implementing prevention at the operational level.

The success of the St. Lawrence Action Plan is due largely to the close working relationship between the federal and Quebec governments. Results achieved during the first 10 years of the plan include a 96% reduction in toxic effluent releases from 50 industrial plants, the protection of 12,000 hectares of wildlife habitat and an increase in the beluga whale population.

Examples of harmonized approaches to pollution prevention include the revised and expanded National Action Plan for Environmental Control of Ozone-Depleting Substances and their Halocarbon Alternatives, and the agreement to develop Canada-wide standards for certain substances as part of the Canada-wide Accord on Environmental Harmonization.

Under *A Strategy to Fulfill the CCME Commitment to Pollution Prevention* (1996), the Canadian Council of Ministers of the Environment continued to recognize leaders in pollution prevention through its Pollution Prevention Awards Program.

Executive Summary (continued)

Progress with the Private Sector

Partnerships between the federal government, provincial/territorial governments and the private sector are resulting in a broad and diverse spectrum of pollution prevention programs. Industry and businesses participating in these programs are increasingly realizing the environmental and economic benefits of adopting pollution prevention processes and practices.

Together with the Ontario government, Environment Canada through various pollution prevention memoranda of understanding has facilitated industry's shift to pollution prevention planning. Participating industries have avoided or minimized the creation of pollutants and waste through prevention activity, and have used recycling, treatment, reuse and other environmental protection measures to manage waste.

Other accomplishments included a 61% or 21,499-tonne reduction in annual emissions from base-year levels reported by facilities participating in the Accelerated Reduction/Elimination of Toxics (ARET) Program. In Atlantic Canada, the Offshore Petroleum Boards required project proponents to incorporate pollution prevention into their offshore development plans. Under the Fraser River Action Plan, best management practices and prevention plans were implemented in businesses and industry sectors in the Fraser basin.

Efforts to improve the environmental performance of small and medium-sized enterprises (SMEs) resulted in the implementation of pilot projects for pollution prevention planning in Manitoba, and a funding program for new prevention technologies in Quebec. Industry Canada and Environment Canada launched the Canadian Business Environmental Performance Office (BEPO). BEPO, an Internet tool, is an environmental management information resource for SMEs.

Progress with the Canadian Public

The Canadian public is becoming better informed of the benefits of pollution prevention. A significant and broad-reaching prevention tool for the public became available with the launch of the Canadian Pollution Prevention Information Clearinghouse (CPPIC). This Internet tool, an action item in the federal Pollution Prevention Strategy and a component of the renewed CEPA, was developed by Environment Canada. CPPIC, along with other on-line sites, training programs, user guides and community-based initiatives, will continue to increase the capacity of Canadians to implement prevention practices.

Progress with the International Community

Cooperation and partnership at the international level are an essential part of the Government of Canada's efforts to achieve clean air, clean water and a healthy environment worldwide. During 1997-1998, pollution prevention workshops, seminars and projects were carried out with foreign governments and industry sectors by the Canadian International Development Agency, Environment Canada, Industry Canada and others. These activities helped build the pollution prevention capacity of countries such as Brazil, Costa Rica and China to facilitate the shift to environmentally sustainable economic growth. Projects under the Multilateral Fund of the Montreal Protocol continued to provide good examples of the success of innovative international cooperation on technologies and know-how to prevent pollution.

As progress is measured and improvements reported, greater success is achieved by learning from the example and experience of others. By relating progress to the five target sectors of the federal Pollution Prevention Strategy, this report and its predecessors provide a framework for monitoring performance and guiding future decision making for the achievement of a clean environment and healthy economy.

Strengthening the Pollution Prevention Framework

Pollution prevention is more cost-effective and better able to reduce risks to human health and the environment than pollution control.

Pollution Prevention and Sustainable Development

The state of the environment remains a bedrock concern for Canadians. The rising incidence of respiratory illnesses and diseases such as cancer and the challenges of combatting climate change, habitat degradation and toxic pollutants in our air, water and food are contributing to this concern.

Pollution prevention helps to lessen risks to human health and the environment by preventing pollution or waste before it is created. In addition to protecting the environment, prevention also fosters domestic and international competitiveness. By improving production efficiencies, reducing liability associated with clean up costs and encouraging long-term innovations rather than short-term investment in expensive stop-gap measures, prevention saves money for Canadian industry and business and promotes a competitive economy.

Canadian business benefits from the economic spin-offs created by the export of preventive technologies. And the Canadian public benefits from improved community safety when consideration is given to pollution prevention at the earliest point in the development of government, industry and business plans, policies, products, projects and processes.

Pollution prevention's ability to protect the environment and make the Canadian economy more efficient and competitive reinforces it as a sound approach to achieving sustainable development.

POLLUTION PREVENTION IS:

the use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and waste, and reduce overall risk to human health or the environment

POLLUTION PREVENTION TECHNIQUES AND PRACTICES FOCUS ON:

- substances of concern
- materials and feedstock substitution
- operating efficiencies
- on-site re-use and recycling
- training
- purchasing techniques
- product design
- process changes
- product reformulation
- equipment modifications
- clean production

The Government of Canada

Making Pollution Prevention Work in Canada

The Federal Framework

Pollution Prevention—A Federal Strategy for Action is the Government of Canada's policy framework for advancing pollution prevention. Endorsed by the federal ministers in June 1995, the strategy elaborates on government policy, and sets priorities for action based on five goals involving partnerships with other orders of government, the private sector and individual Canadians.

Goals of the federal Pollution Prevention Strategy include:

- Within the Federal Government: institutionalize pollution prevention across all federal government activities;
- With Other Governments: foster a national pollution prevention effort;
- With the Private Sector: achieve a climate in which pollution prevention becomes a major consideration in industrial activities;
- With All Canadians: provide access to the information and tools necessary to implement pollution prevention practices;

- With the International Community: participate in international pollution prevention initiatives.

The pollution prevention strategy of the Canadian Council of Ministers of the Environment (CCME) establishes a national framework for pollution prevention that parallels the federal strategy. Published in May 1996, *A Strategy to Fulfill the CCME Commitment to Pollution Prevention* sets out a shared vision, mission and goal statement as well as guiding principles for the implementation of pollution prevention by all provinces and territories and the federal government.

The principles of pollution prevention are also key to implementation of the *Toxic Substances Management Policy* (1995) and the *CCME Policy for the Management of Toxic Substances* (1996). Both policies put forward a preventive and precautionary approach for the effective management of toxic substances. The renewed *Canadian Environmental Protection Act* (CEPA), when promulgated by Parliament, will further put prevention into practice by making it a governing principle of the Act and by enabling the wide use of pollution prevention planning.

Section 1: Strengthening the Pollution Prevention Framework (continued)

BENEFITS OF POLLUTION PREVENTION:

- minimizes or avoids the creation of pollutants
- prevents the transfer of pollutants from one medium to another
- accelerates the reduction and/or the elimination of pollutants
- minimizes health risks
- promotes the development of source reduction technologies
- uses energy, materials and resources more efficiently
- reduces the need for costly enforcement
- limits future liability with greater certainty
- recognizes that waste is a cost that can be reduced
- avoids costly clean-up in the future
- promotes a more competitive economy

The Canadian Council of Ministers of the Environment

MEMBERS OF THE POLLUTION PREVENTION COORDINATING COMMITTEE

Environment Canada (Chair)

The Canadian International Development Agency

The Department of Foreign Affairs and International Trade

The Department of National Defence

Fisheries and Oceans Canada

Industry Canada

Public Works and Government Services Canada

Transport Canada

The Canadian Centre for Pollution Prevention

The Pollution Prevention Coordinating Committee

The federal Pollution Prevention Coordinating Committee (P2C2), established in 1992, helps promote the concept of pollution prevention and its practice throughout the federal government. In the few years since its inception, several departments have joined the committee, providing broad-based support for extending pollution prevention activity throughout federal government operations.

The P2C2 promotes the adoption of pollution prevention throughout Canada in both the public and private sectors. It encourages and facilitates the exchange of pollution prevention information to all Canadians and to the international community. Through regular communication and their annual meeting, P2C2 members share successes, challenges and solutions for pollution prevention.

Progress in Pollution Prevention 1997-1998 is the third annual progress report of the P2C2. This report serves to inform Canadians, government officials and members of the international community of pollution prevention achievements and successes across the country. By relating progress to the five target sectors of the federal Pollution Prevention Strategy, the report provides a framework for monitoring performance and guiding future decision making towards the goal of pollution prevention. A broader membership and increased participation of

federal departments in the P2C2 enhanced the scope and comprehensiveness of this year's report.

Putting Prevention into Practice

Prevention is being put into action through the efforts of the P2C2 and the Government of Canada's partnerships with other governments, Canadian citizens and communities, businesses, industries, non-government organizations and international organizations.

Steadily, prevention is being incorporated into federal programs, projects and approaches to doing business, thus strengthening the government's capacity to provide a clean environment and healthy economy for all Canadians.

Successes such as the Fraser River Action Plan, the St. Lawrence Action Plan, the Montreal Protocol, industrial pollution prevention projects and the Canadian Pollution Prevention Information Clearinghouse provide concrete examples of prevention's benefits and incentive for continued progress.

By further building on partnerships with all sectors of society and further promoting the practices, techniques and benefits of prevention, the Government of Canada will continue to put policy into practice and work towards strengthening the federal framework.

Annual meeting of the Pollution Prevention Coordinating Committee in Winnipeg, May 1998



Progress within the Federal Government

The Government of Canada is putting the federal environmental house in order by incorporating creative and effective pollution prevention solutions into its decisions, activities and operations.

Legislation

In March 1998, legislation to strengthen and amend the *Canadian Environmental Protection Act (CEPA)*, with pollution prevention as its guiding principle, was introduced to Parliament. Provisions for pollution prevention in the renewed Act include prevention planning for toxic substances and federal facilities.

In January 1998, new *Diesel Fuel Regulations* came into effect. Sulphur in on-road diesel fuel is now set to a maximum of 0.05% (500 parts per million). These regulations will improve air quality by reducing the amount of particulate matter released to the air by 5,000 tonnes per year.

New *Benzene in Gasoline Regulations*, designed to reduce the amount of benzene in gasoline to less than 1% by volume, were announced in November 1997. These regulations, effective July 1, 1999, will reduce the annual amount of benzene, a toxic substance that is carcinogenic, released to the air by 3,000 tonnes.

CEPA Part IV Regulations Respecting Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands came into effect in August 1997. These regulations complement the existing CEPA Part IV technical guidelines for storage tank management by requiring annual compliance reporting.

Effective for the 1997 reporting year, new provisions to the National Pollutant Release Inventory (NPRI) required facilities to provide qualitative information on their pollution prevention activities for NPRI-listed substances. A brochure on pollution



Transport Canada continues to promote environmental impact monitoring at airports

prevention was developed to help NPRI reporting facilities comply with the new reporting requirement.

Toxic Substances — The Strategic Options Process

Under the Strategic Options Process (SOP), multi-stakeholder recommendations for the prevention and reduction of several toxic substances associated with particulate matter emissions from the Electric Power Generation sector were accepted by the Minister of the Environment. Pollution prevention recommendations included: revising the present thermal power generation emission guidelines for new plants; negotiating agreements with major electric utilities to reduce particulate emissions from existing facilities; investigating the possible role for a scientific advisory group to provide independent advice to government and the utilities; and developing a joint industry-government plan to further assess fine particulate, mercury, oxidic, sulphidic and soluble inorganic nickel compound releases.

Clean Air

In November 1997, Phase 2 of the Federal Smog Management Plan was announced. The plan brings together federal government initiatives designed to help resolve the smog problem in Canada. Initiatives include strict emission standards for new vehicles; revised codes of practice for vehicle inspection and maintenance programs; and the development of a sustainable transportation policy. Development of the Plan was led by Transport Canada, Natural Resources Canada and Environment Canada.

Transport Canada is developing a national low emission vehicle program. In 1997, 1998, the department also promoted environmental impact monitoring at airports.

THE STRATEGIC OPTIONS PROCESS

The Strategic Options Process is a multi-stakeholder consultation process designed to recommend options to the Ministers of Environment and Health for the management of toxic substances under CEPA. For more information on the management of toxic substances, visit www.ec.gc.ca/sop and www.ec.gc.ca/cceb1 on the Internet.

Sustainable Development and Environmental Management Systems

In accordance with the 1995 amendments to the *Auditor General Act*, 28 federal departments and agencies tabled sustainable development strategies by December 10, 1997. Pollution prevention is an integral part of many of these departmental strategies, which include goals and action plans for waste reduction, green procurement, water conservation and energy efficiency.

The Department of National Defence's sustainable development strategy commits to reducing the use of specified high-risk hazardous materials. As part of this commitment, a chemical process replacement procedure developed by the Department was applied to a methylene chloride paint stripping operation at Canadian Forces Base Halifax.

Both Transport Canada and Environment Canada improved their departmental management strategy for ozone-depleting substances (ODS) by updating their inventories to include halons and solvents, in addition to refrigerants. The inventories are included in each department's environmental management system (EMS).

Using 1988 as the baseline year, Environment Canada surpassed the solid waste reduction target (80%) of its sustainable development strategy by achieving an 82% reduction in the amount of waste sent to landfill. This was achieved through measures such as use reduction, on-site reuse and recycling.

Environment Canada's Environmental Technology Centre developed an EMS for its laboratory and research operations. It includes a management strategy and action plan to reduce and eliminate the use of ODS in its laboratory operations and building heating, ventilation and air conditioning systems.

Waste Reduction/Energy Efficiency

Public Works and Government Services Canada has been working to implement green standards for the management of construction, renovation and demolition waste. A pilot project, undertaken as part of the renovations to the Parliament Buildings in Ottawa, diverted 95% of waste material from landfill. A similar project in Winnipeg achieved 100% waste diversion.

The Federal Buildings Initiative (FBI) enlists private-sector companies to undertake energy-wise renovations in federally owned or leased buildings. Environment Canada participated in four FBI projects, generating an annual savings of \$623,000.

ENMAX, Calgary's electric system, signed an agreement to supply nine Environment Canada buildings in Alberta with 100% wind-generated power for the next 10 years. This agreement is the first institutional purchase of "green power" in Canada.

THE INTERDEPARTMENTAL NETWORK ON SUSTAINABLE DEVELOPMENT STRATEGIES

The Interdepartmental Network on Sustainable Development Strategies serves as a forum to support the preparation and implementation of sustainable development strategies in federal departments. The Network facilitates coordination among federal departments and supports linkages to other interdepartmental groups, such as the Federal Committee on Environmental Management Systems and the Pollution Prevention Coordinating Committee.

The National Pollutant Release Inventory (NPRI) is a nation-wide publicly accessible database of 176 pollutants that are released to air, water and land in Canada. For more information, visit the NPRI Website at www.ec.gc.ca/pdb/npri

Section 2: Progress within the Federal Government (continued)

Pilot Projects and Research

The Department of National Defence, in conjunction with the National Research Council Centre for Fluid Power Technology, developed a prototype coatings removal system that uses ultrasonic energy to create a pulsed waterjet. This removal system reduces the amount of air contaminants and waste generated.

THE INTERDEPARTMENTAL ADVISORY GROUP ON WATER CONSERVATION AT FEDERAL FACILITIES

The Interdepartmental Advisory Group on Water Conservation at Federal Facilities (WCFF) promotes water use efficiency in federal operations by developing common tools, coordinating activities, providing advice and participating in other interdepartmental groups such as the Federal Committee on Environmental Management Systems. In 1997-1998, the WCFF was asked by the Office of the Auditor General to help develop water efficiency performance measures.

The Canadian Coast Guard and Environment Canada (Ontario Region) are partners in a pollution prevention demonstration site at Base Prescott. Initiatives include reducing the use of environmental contaminants, using water-based paint on channel markers, and introducing solar energy cells on channel markers and other marine equipment.

The Canadian Coast Guard examined the operations of the Coast Guard ship *Simcoe* to identify pollution prevention opportunities. The final report for the study will include recommendations for prevention on board the *Simcoe* and on similar ships.

In 1997-1998, Environment Canada (Atlantic Region) used its environmental emergencies database to identify spill trends and areas where future preventive action is needed. Based on

the analysis, steps were taken to address the problem areas.

Operations/Facility Management

Environment Canada (Quebec Region) commissioned the development of a glycol concentrator for airports. The concentrator will allow for on-site recycling of this aircraft de-icing fluid.

In conjunction with air carriers, Transport Canada implemented detailed glycol mitigation plans and procedures to ensure the proper environmental management of the chemical.

The Department of Foreign Affairs and International Trade, and Environment Canada (Pacific and Yukon Region) implemented a comprehensive program to green the 1997 Asia Pacific Economic Cooperation conference held in Vancouver. Special emphasis was placed on incorporating pollution prevention into the Economic Leaders Meeting.

Education and Training

Environmental coordinators used the *Choose to Reduce Tool Kit*, developed by Public Works and Government Services Canada, to launch cost-effective awareness campaigns for waste reduction and green procurement.

Environment Canada (Headquarters and Atlantic Region) held a contingency planning workshop for representatives from federal facilities in Atlantic Canada. Participants learned about spill prevention and preparedness techniques including hazard identification, risk ranking and auditing.

Environment Canada (Ontario Region) developed spill prevention workshops to assist federal facilities in Ontario in creating a systematic, site-specific plan to reduce the use of toxic materials and the impact of spills of these materials on the environment. Two of these workshops were delivered in March 1998.

The Environmental Technology Centre of Environment Canada, in conjunction with Ontario Region, is producing a video on pollution prevention for laboratory and research facilities. Highlights include the environmental and economic advantages of incorporating pollution prevention activities into laboratory operations.

An environmental auditing course, developed and piloted by Environment Canada (Atlantic Region), was delivered to public sector participants in March 1998. Participants were trained in evaluating audits, applying audit techniques and the role of auditing in the operation of environmental management systems.

Environment Canada (Quebec Region) designed and hosted the first of five workshops on emergencies and health. Workshop objectives include discussion of the *Canusqué annexe*, the Quebec Region appendix to the Canada-United States Joint Inland Pollution Contingency Plan.

Environment Canada (Headquarters) produced a guide to federal environmental legislation, guidelines and pollution prevention practices. A course based on the guide was delivered to more than 85% of the Department's facility managers and operational personnel.

Progress with Other Governments

Across Canada, all orders of government are working in partnership to encourage a national shift to pollution prevention.



In addition to reducing industrial toxic effluent releases, the St. Lawrence Action Plan has resulted in an increase in the beluga whale population.

CCME POLLUTION PREVENTION STRATEGY

Vision

An environmentally responsible society that anticipates and prevents pollution.

Goal

To make pollution prevention the strategy of choice for protecting the environment and improving economic competitiveness.

Partners in Pollution Prevention National

A report released in January 1998 by the Canadian Council of Ministers of the Environment (CCME) found that, in 1996, Canadians reduced the amount of packaging sent for disposal by 51.2%. This exceeds the CCME's National Packaging Task Force year 2000 reduction target of 50%.

The CCME Pollution Prevention Awards Program gives national recognition to companies and organizations showing accomplishment or leadership in pollution prevention. Each year up to six certificates of recognition are awarded. Winners of the 1997 CCME Pollution Prevention Awards include: the Municipality of Annapolis County (Nova Scotia); Bebbington Industries (Dartmouth, Nova Scotia); Crown Cork & Seal Canada Inc. (Concord, Ontario); and Kuntz Electroplating Inc. (Kitchener, Ontario). Canadian Forces Base Trenton – 8 Wing received honourable mention for its efforts to reduce solvent use and act as a pollution prevention demonstration site. For more details, contact the CCME at (204) 948-2757 or visit the CCME Website at: www.ccme.ca/ccme

The National Action Plan for Environmental Control of Ozone-Depleting Substances and their Halocarbon Alternatives was revised and expanded. Published by the CCME in January 1998, the plan provides a national framework for prevention programs for these substances.

Provincial and Municipal

As a member of the Federation of Canadian Municipalities (FCM) 20% Club, Halifax Regional Municipality (HRM) agreed to reduce greenhouse gas emissions to 20% below 1990 levels. In 1997-1998, HRM, with strategic and technical assistance from Environment Canada (Atlantic Region), completed its benchmark 1990 greenhouse gas emissions estimates and identified major assets and activities of concern.

In October 1997, HRM agreed to implement a pollution prevention plan as part of the effort to clean up the Halifax harbour. Environment Canada (Atlantic Region) helped HRM complete the plan and will assist in its implementation.

As a member of the *Comité mixte municipal-industriel de gestion des risques d'accidents industriels majeurs pour l'est de Montréal* (CMMI), Environment Canada (Quebec Region) helped revise the committee's guide. The committee is developing and implementing an integrated risk management process that includes risk identification, response plans and public information.

Section 2: Progress with Other Governments (continued)

The Province of British Columbia and the Regional Districts containing Vancouver and Victoria, in partnership with Environment Canada (Pacific and Yukon Region) and Industry Canada, are developing a framework of regulatory and non-regulatory instruments that encourage small businesses to adopt pollution prevention. The printing industry will be the first sector profiled.

ST. LAWRENCE ACTION PLAN: VISION 2000

The St. Lawrence Action Plan, launched in 1988, is designed to clean up the St. Lawrence ecosystem, improve the health of communities and increase access to the river. Results achieved during the first 10 years of the plan include a 96% reduction in toxic effluent releases from 50 industrial plants, the protection of 12,000 hectares of wildlife habitat and an increase in the beluga whale population.

The plan's success is due largely to the close working relationship between the federal and Quebec governments. Other partners include private companies, universities, environmental groups, research centres and local organizations.

Phase III (1998-2003) of the St. Lawrence Action Plan is now under way. This phase will focus on a prevention-based approach in the areas of biodiversity, agriculture, industry, health and navigation. Community organizations will also play an increasingly active role in the clean up of the St. Lawrence ecosystem. Environment Canada, its

federal partners and the Quebec government will focus their efforts on pollution prevention in the chemicals, metallurgy and metal finishing sectors.

PATH FORWARD: THE NORTHERN RIVER BASINS STUDY

The Northern River Basins Study (NRBS), jointly sponsored by the governments of Canada, Alberta and the Northwest Territories, was initiated in response to increasing concern that the cumulative effects of development were adversely affecting the aquatic health of the Peace, Slave and Athabasca river systems.

The five-year study, completed in 1996, was designed to address ecological concerns in regard to the growing number of industrial developments in the river basins (i.e. pulp and paper, and oil sand projects) and to increase scientific knowledge of conditions in the major river systems of the north.

In response to one of the study's recommendations, the governments of Canada, Alberta and the Northwest Territories declared pollution prevention as a primary environmental objective and an essential component of sustainable development in the basins. All three governments involved in the NRBS have endorsed the CCME document *A National Commitment to Pollution Prevention* (1993).

Environment Canada, other federal departments, Alberta and the Northwest Territories are working together to address the recommendations from the NRBS through the Northern Rivers Ecosystem Initiative (NREI). Promoting pollution prevention to municipalities within the river basins is one proposed area of activity.

HARMONIZATION

The Canada-wide Accord on Environmental Harmonization recognizes pollution prevention as the preferred approach to environmental protection. In cooperation with provincial and territorial governments and in consultation with stakeholders, Canada-wide Standards (CWSs) are being developed for ground-level ozone, airborne particulate matter, petroleum hydrocarbons in soil, benzene, mercury, dioxins and furans.

Progress in the Private Sector

Canadian industry and business are adopting pollution prevention and realizing both environmental and economic benefits.

Industrial Pollution Prevention

The Accelerated Reduction/Elimination of Toxics (ARET) Program targets the reduction or elimination of 117 toxic substances in the environment. *Update to Environmental Leaders 2*, the program's 1997 progress report, reported that 292 facilities reduced annual emissions by 21,499 tonnes or 61% from base-year levels.

The Pacific and Yukon Region of Environment Canada completed pollution prevention guidelines for the wood preservation, foundry, ready-mixed concrete, exposed aggregate, dairy, brewery and winery industries.

Guidelines for the proper siting, design and management of land treatment cells for the remediation of contaminated soils in Yukon were developed by Environment Canada (Pacific and Yukon Region). These guidelines help to prevent the release of contaminants to surface and ground water by ensuring that soils contaminated by oil and fuel spills at highway construction campsites are managed properly.

Environment Canada (Quebec Region) organized, on a partnership basis, the 20th Symposium on Wastewater Treatment for government and industry environmental professionals. Issues discussed included pollution prevention in the mining and metals sectors.

In collaboration with Headquarters, Environment Canada (Quebec Region) conducted a study to identify the potential for implementation of eco-efficient industrial parks in Quebec. The study concluded that the Bas-Richelieu region had considerable potential.



A wet clean facility in Hamilton, Ontario. Wet cleaning equipment eliminates the use of perchloroethylene, a hazardous solvent.

Sector-Specific Pollution Prevention Initiatives

Agriculture

As part of its efforts to reduce the use of chemical fumigants, the Canadian Methyl Bromide Industry/Government Working Group developed an integrated pest management plan for food processing facilities. The plan sets out procedures and guidelines for facility operators and pest control companies interested in incorporating integrated pest management into their operations.

Automotive

Since 1992, members of the Canadian Motor Vehicle Manufacturers' Association (Chrysler Canada Ltd., Ford Motor Company of Canada Ltd. and General Motors of Canada Ltd.) have been engaged in a pollution prevention project with the Ontario Ministry of Environment and Environment Canada (Ontario Region). Member companies have avoided or minimized the creation of pollutants and waste through prevention activity and have used recycling, treatment, reuse and other environmental protection measures to manage waste. A pollution prevention project established in 1993 with the Automotive Parts Manufacturers Association has resulted in participating industries reducing or eliminating 623 tonnes of environmental contaminants since March 1996.

AT THE INAUGURAL CANADIAN POLLUTION PREVENTION ROUNDTABLE (CPPR)

in May 1997, more than 80 pollution prevention practitioners and specialists met to identify opportunities for cooperation. The CPPR provides a forum for organizations to coordinate their pollution prevention efforts and benefit from existing resources, tools and expertise. For more information, contact the Canadian Centre for Pollution Prevention at 1-800-667-9790 or <http://c2p2.sarnia.com>

Section 2: Progress in the Private Sector (continued)

The Northwest Territories Chamber of Commerce and Environment Canada (Prairie and Northern Region) developed pollution prevention fact sheets for automotive repair facilities. Auto repair shop staff use the fact sheets to incorporate pollution prevention practices into their daily operations.

The Hamilton District Autobody Repair Association is working with the Ontario Ministry of Environment and Environment Canada (Ontario Region) on a pollution prevention project that targets volatile organic compounds and other contaminants resulting from auto-body refinishing operations. Workshops delivered to auto-body shop managers and painters introduce pollution prevention, its financial benefits, and the skills required to use mandated products and equipment such as more efficient spray guns.



Through pollution prevention training courses industry and business are incorporating prevention principles into their daily operations

Dry Cleaning/Fabricare

A British Columbia Fabricare Association workshop on wet cleaning technology, sponsored by Environment Canada, promoted wet cleaning as an environmentally friendly alternative to dry cleaning with perchloroethylene solvent.

The Atlantic Fabricare Association, in partnership with Environment Canada (Atlantic Region), held seminars to inform fabricare specialists of the benefits and considerations related to wet cleaning technology.

The Canadian Fabricare Association (CFA), in partnership with the Ontario Fabricare Association and Environment Canada (Ontario Region), developed an *Environmental Code of Management Practice for Textile Care Operations in Canada*. The CFA also organized a conference for fabricare specialists on new technologies in non-aqueous cleaning.

Forestry

Williams Lake Sawmill in British Columbia completed and began implementing recommendations from its pollution prevention plan. Environment Canada (Pacific and Yukon Region) and Riverside Forest Products co-funded the development of the plan.

Healthcare

A best practices manual is being developed for dental offices to help reduce the discharge of mercury and other toxics to sewer systems. Key partners in this project are the Ontario Dental Association, the Region of Hamilton-Wentworth, the Ontario Ministry of Environment and Environment Canada (Ontario Region).

A joint initiative between the healthcare sector, environmental organizations, Environment Canada (Ontario Region), and the Ontario Ministry of Environment established a website, "Healthcare EnviroNet," to promote pollution prevention and mercury reduction activities in Ontario's healthcare sector.

Heavy Construction

The Manitoba Heavy Construction Association, the Province of Manitoba and Environment Canada (Prairie and Northern Region) established a two-year industry-led environment program for the heavy construction industry. Training materials, best management practices and an environmental management manual were developed and tested.



A multi-agency team led by Environment Canada is working to reduce the amount of toxic substances released from ship hull maintenance activities in Atlantic Canada

Marinas/Ships

As part of its marina operation demonstration site, Environment Canada (Ontario Region) produced a video showing how initiatives, such as upgraded fuel and waste systems, and the use of non-toxic cleaners by boat and marina owners can reduce the environmental impact of boating.

Environment Canada (Atlantic Region) is leading a multi-agency team working to reduce the amount of toxic substances released from ship hull maintenance activities such as paint application and removal. Initiatives include training to promote best practices and new technologies, pollution prevention demonstration projects, and information sharing.

Section 2: Progress in the Private Sector (continued)

ADVANCING POLLUTION PREVENTION:

PETROLEUM PRODUCTION OFFSHORE ATLANTIC CANADA

In 1997-1998, two petroleum projects were approved for development by the Offshore Petroleum Boards (OPBs): the Terra Nova Oil Field offshore Newfoundland and the Sable Gas Field and Export Pipeline offshore Nova Scotia.

Through the *Canadian Environmental Assessment Act* and other mechanisms, Environment Canada (Atlantic Region) provided pollution prevention advice and recommendations to the OPBs. As independent federal-provincial agencies, the OPBs are responsible for regulating the exploration, development and transportation of petroleum in the offshore area.

From the input received, the OPBs started to require project proponents to incorporate pollution prevention into their offshore development plans. As well, approvals for the Terra Nova Oil Field and the Sable Gas Field were subject to the following prevention-based conditions/recommendations: the Terra Nova Oil Field project will re-evaluate the need to discharge drilling and production wastes into the ocean and adopt the precautionary principle, a tenet of sustainable development; the Terra Nova Oil Field's project proponent should seek third-party certification of its environmental management system; and the Sable Gas Field and Export Pipeline project will operate under a Total Quality Management Plan and virtually eliminate the discharge of oily drill cuttings by December 31, 1999.

Metal Finishing

An MOU between several metal finishing industry associations, the Ontario Ministry of Environment and Environment Canada (Ontario Region) to undertake pollution prevention has resulted in participating industries reducing emissions of approximately 1,951 tonnes of targeted substances.

Mining

Cominco Ltd., in partnership with the Province of British Columbia and Environment Canada (Pacific and Yukon Region), pilot tested the use of woodwaste combustion ash as a neutralizing reagent for toxic acidic drainage from abandoned mines. Results of the test found the ash to be a suitable, cost-effective substitute for lime, a reagent that incurs heavy carbon dioxide emissions during its manufacture.

Oil and Gas

In cooperation with the National Energy Board, Environment Canada and Fisheries and Oceans Canada are developing a National Offshore Chemical Notification Plan for the selection of environmentally

safe chemicals for offshore petroleum exploration and production.

Printing and Graphics

Members of the Ontario printing industry are engaged in an MOU with the Ontario Ministry of Environment and Environment Canada (Ontario Region) to implement pollution prevention planning. The project's *Second Progress Report* reported a 400-tonne reduction in environmental contaminants since June 1995.

Transportation

Hamilton International Airport, in partnership with Environment Canada (Ontario Region), established a pollution prevention project in January 1998. Project initiatives include replacing solvent-based parts washers, finding a replacement product for petroleum-based hydraulic fluid, and minimizing the release of aircraft de-icing fluid.

Tourism

An eco-rating program for the hotel sector was developed by the Hotel Association of Canada in partnership with Terra Choice Environmental Services, Environment

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BUSINESS ENVIRONMENTAL
PERFORMANCE OFFICE,
an environmental information
resource for small and
medium-sized Canadian
businesses, at
<http://virtualoffice.ic.gc.ca/bepo>

Section 2: Progress in the Private Sector (continued)

Canada (Headquarters) and other federal departments. Under this program the environmental management of hotel operations is rated. As of February 1998, nine hotels had received eco-ratings.

In St. John's, Newfoundland, Environment Canada (Atlantic Region) staff surveyed hotel operations to identify pollution prevention opportunities and raise awareness regarding water conservation and energy efficiency.

The Nova Scotia Ecotourism Development Foundation, with input from Environment Canada (Atlantic Region), developed a Code of Ethics and a Code of Practice. Both codes identify pollution prevention as the preferred environmental management approach for the Foundation's activities.

Pollution Prevention for Small and Medium-sized Enterprises

In 1997-1998, the Department of Foreign Affairs and International Trade's promotion of Canadian industry abroad focused on small and medium-sized enterprises (SMEs) that offer pollution prevention solutions.

In November 1997, the Canadian Business Environmental Performance Office (BEPO) was launched at the Environment and Energy Conference of Ontario. Developed jointly by Industry Canada and Environment Canada, this virtual office is designed to raise the environmental performance of SMEs by providing on-line links to key resource people and information references.

Cape Breton businesses reduced their energy consumption and waste generation and developed environmentally sound procurement policies with the help and advice of Environment Canada (Atlantic Region).

The Canadian Raw Materials Data Base (CRMD) is designed to provide SMEs with life-cycle inventory data, profiling resource-based commodities for improving products and processes via pollution prevention and design, and the benchmarking of internal improvements. An industry-led voluntary initiative, the CRMD comprises representatives from the glass, steel, plastics, wood and aluminum industries. Environment Canada (Headquarters) chairs the project's steering committee, and the Canadian Standards Association serves as Secretariat. A methodology has been developed and data collection has started.

Environment Canada (Atlantic Region) assisted SMEs in the Miramichi River Watershed in developing and implementing environmental management plans.

Environment Canada (Quebec Region) signed a three-year, \$2 million per year agreement with Canada Economic Development. Funds in the form of reimbursable contributions are provided under the Idea-SME program. This program offers scientific, technical and financial support to SMEs to develop innovative and commercially viable environmental technologies, products, processes and services, particularly in the area of pollution prevention.

PROTECTING THE GREAT LAKES

Environmental protection of the world's largest freshwater ecosystem is the driving force behind Environment Canada's (Ontario Region) involvement in initiatives such as the *Canada-Ontario Agreement (COA) Respecting the Great Lakes Basin Ecosystem*. The COA objective is virtual elimination of persistent, bioaccumulative and toxic substances. Canada and Ontario are also working with the U.S. federal and state governments to virtually eliminate persistent toxic substances targeted under the *Great Lakes Binational Toxics Strategy*.

These and other pollution prevention efforts have resulted in significant reductions or elimination in the use, generation and release of toxic substances to the environment. Together with the Ontario Ministry of Environment, Environment Canada will continue to work in cooperation with federal departments, industry, municipalities and other stakeholders to advance pollution prevention within the Great Lakes region.

Section 2: Progress in the Private Sector (continued)

Through the Manitoba Pollution Prevention Partnership Program for SMEs, pilot projects were implemented in the metal finishing, and printing and graphics sectors. The program was established by the Manitoba Division of the Alliance of Manufacturers and Exporters Canada and the Manitoba government. Environment Canada (Prairie and Northern Region) participated in this effort.

Research and Development

The Microwave-Assisted Process (MAP™) is a clean process technology that extracts chemicals from various matrices. Developed and patented by Environment Canada, the MAP™ method requires 90% less energy and solvent than other conventional methods and generates less waste. As of March 1998, Environment Canada had negotiated seven licences with private sector companies for the commercialization of various applications of this patented process method.

Environment Canada (Quebec Region) commissioned the development and demonstration of a continuous oil analysis and maintenance system. This system extends the life of lubricants, thereby reducing the amount sent for disposal.

Training and Education

The Manitoba Green Procurement Network, chaired by the Manitoba Environmental Industries Association, promotes green procurement in the province's industrial, commercial and institutional sector through information sharing, training and demonstration projects. Environment Canada (Prairie and Northern Region) helped create the Network.

In partnership with the *Comité sectoriel de main-d'œuvre de l'industrie de l'environnement* and the *Grappe de développement des industries de l'environnement inc.*,

SUCCESS STORY

THE FRASER RIVER ACTION PLAN

Environment Canada, in cooperation with Fisheries and Oceans Canada and a wide range of other partners, completed the Fraser River Action Plan (FRAP) in March 1998. Goals of the Action Plan included enhancing the productivity of the Fraser River basin through restoration of its natural habitat, preventing and cleaning up environmental contamination and developing a sustainable development management plan.

Among others, FRAP achievements included the implementation of best management practices and pollution prevention plans in many businesses and industry sectors.

Ongoing challenges within the basin include protecting the water quality from non-point sources of pollution such as agricultural and urban runoff and releases from small and medium-sized industries.

The successes, knowledge and lessons learned from FRAP will be of significant value to the Georgia Basin Ecosystem Initiative, launched in 1998.

Environment Canada (Quebec Region) produced the *Répertoire des ressources québécoises en formation environnementale en entreprise*. This directory is for manufacturing, business and public sector environmental and human resource managers.

Progress with the Canadian Public

When communities and individuals are provided access to the information and tools needed to implement prevention activities, they are empowered to demonstrate positive action.

The Canadian Institute for Environmental Law and Policy published *A Citizen's Guide to Pollution Prevention*. Developed with support from Environment Canada, this step-by-step guide to prevention includes a history of pollution prevention and useful references.



SUSTAINABLE COMMUNITIES

In Atlantic Canada, pollution prevention has been identified as a key strategy to help communities move towards sustainable development. Two examples of community-based initiatives that are putting prevention into practice are ACT! for a Healthy Sydney and the Humber Arm Environment Association Inc.

ACT! for a Healthy Sydney is a community-based organization mandated to improve the quality of life in Sydney, Nova Scotia, through health promotion and positive environmental change. With funding from EcoAction 2000, ACT! conducted 300 household audits to assist homeowners in improving the energy efficiency of their homes, and reducing waste. EcoAction 2000 is an Environment Canada program that provides financial support to help Canadians take action in support of a healthy environment.

With assistance from the Atlantic Coastal Action Plan (ACAP) program, the Humber Arm Environment Association Inc., a community-based organization, launched a comprehensive pollution prevention awareness program. This program used radio spots, newspaper articles, school presentations, curriculum supplements, posters and pamphlets to raise awareness among community members and to promote actions that prevent pollution in the Humber Arm estuary, located on the west coast of Newfoundland. ACAP relies on local involvement to manage the environmental quality of coastal environments. It is part of the federal government's strategy for pollution prevention in the marine ecosystem.

The Canadian Pollution Prevention Information Clearinghouse (CPPIC), an Internet tool, was launched at the Globe '98 International Trade Fair and Conference in Vancouver. An action item in the federal Pollution Prevention Strategy and a component of the renewed *Canadian Environmental Protection Act*, the CPPIC was developed by Environment Canada. Information on the site is a collaborative effort involving, among others, the Canadian Centre for Pollution Prevention (C2P2), the Environmental Choice Program, Envision Compliance and the Business Environmental Performance Office.

Saskatchewan Environment and Resource Management, with input from Environment Canada (Prairie and Northern Region), developed an environmental awareness program entitled *Focus on Forests*. This hands-on guide to pollution prevention is used as a training program by teachers and students.

Seven urban Quebec municipalities achieved a 49% reduction in pesticide use on 25 residential properties and two public parks through the implementation of integrated weed management programs. The project, carried out by the *Association des services en horticulture ornementale du Québec* with funding from Environment Canada's EcoAction 2000 program, helped to promote integrated weed management as an alternative to pesticide use.

The Canadian Centre for Pollution Prevention established *P2 Dialogue*, an on-line forum dedicated to the sharing of pollution prevention information. Since its inception, subscriptions to the forum have more than doubled, and information is now being shared among 250 subscribers.

The Canadian Labour Congress published *A Workers' Manual on Pollution Prevention*. This manual, developed with the support of Environment Canada's National Office of Pollution Prevention, introduces workers to the core concepts of pollution prevention and provides them with strategies for incorporating pollution prevention into the workplace.

For pollution prevention information and tools, visit the Canadian Pollution Prevention Information Clearinghouse at: www.ec.gc.ca/cppic

A project to convert Montreal's community gardens into ecological gardens set up demonstration sites promoting the reuse and recycling of plant residues and introducing ecological gardening techniques as an alternative to chemical pesticides and fertilizers. A 90% reduction in pesticide use was achieved by the demonstration plots and a total of 1,165.6 kg of organic matter was recovered. Funding for the project was provided by Environment Canada's EcoAction 2000 program.

Progress with the International Community

Leadership, participation and cooperation in international initiatives create effective and innovative opportunities to advance pollution prevention.

SUSTAINABLE DEVELOPMENT

has become one of the strategic objectives of the Organisation for Economic Co-operation and Development (OECD) and its member countries. To help achieve this objective, the OECD will focus more on horizontal program activity to better integrate economic, environmental and social policies with increased transparency, and will increase stakeholder participation.

Environment Canada, Industry Canada and Natural Resources Canada continue to actively participate in OECD working groups that address environmental policy, chemicals management, and pollution prevention and control.

North, Central and South America

Environment Canada (Quebec Region) carried out, on a partnership basis, a preliminary analysis of hazards posed by industries, and road and rail transportation along the shared inland boundary of the United States and Quebec. The study was designed to facilitate the development of improved contingency plans.

Environment Canada, Industry Canada and the Globe Foundation organized an international workshop on Clean Production/Clean Technology (CP/CT) Information Systems at Globe '98 in Vancouver. With more than 50 participants, the workshop was an excellent opportunity to disseminate information on CP/CT, improve information systems and transfer, and strengthen mechanisms to profile CP/CT capabilities.

Two seminars on pollution prevention in the oil exploration and gold mining sectors were organized by Environment Canada (Quebec Region) in Costa Rica. The seminars brought together 150 private and public sector representatives from several Latin American countries.

Two workshops were held in São Paulo, Brazil, under the auspices of Watershed Management 2000, a CIDA-funded Environment Canada-Brazil project.

The workshops focused on pollution prevention in the metal-finishing industry and multi-stakeholder negotiation processes for issues related to industrial pollution. Participants included São Paulo government officials, São Paulo Basic Sanitation Company staff and representatives from the Brazilian metal finishing association.

Asia and Africa

As part of CIDA's China-Canada Higher Education Program, representatives from Environment Canada's Environmental Technology Centre and McGill University provided technical seminars to Chinese researchers in techniques related to microwave-assisted processing and the Microwave-Assisted Process (MAP™).

THE CANADIAN INTERNATIONAL DEVELOPMENT AGENCY

The Canadian International Development Agency (CIDA) has worked diligently to advance and enable pollution prevention internationally. The projects and programs shown below were implemented in 1997-1998 in conjunction with the private sector and a number of other federal departments.

- Environmental Training in Brazilian Industry
- Canada-Brazil Technology Transfer Project
- Risaralda River Basin Planning (Colombia)
- Costa Rica Productive Sector Modernization Program
- ARPEL Environmental Project — Phase II (Latin America)
- Southern Cone Technology Transfer Project (Latin America)
- OLADE Energy and Environment Project (Latin America)
- Increasing Energy Efficiency in Buildings (China)
- China-Canada Cooperation Project in Cleaner Production
- Canada-China Jiangsu Small and Medium Enterprise Management and Environment Project
- TATA Energy Research Institute (TERI) Canada Energy (India)
- Confederation of Indian Industry — Environmental Management
- Collaborative Environmental Protection in Indonesia
- Vietnam-Canada Environment Project (VCEP)
- Canada-Vietnam Technology Transfer Project
- Egypt Environmental Initiatives Fund (EEIF)

Section 2: Progress with the International Community (continued)



Taking air quality sample on Haiphong street corner, Vietnam-Canada Environment Project

Environment Canada (Quebec Region) organized a one-week workshop in Morocco on the management of dredged sediments. Participants included government managers, engineering consulting firms and equipment companies.

International Organizations

Environment Canada helped the Organisation for Economic Co-operation and Development (OECD) improve the environmental performance of its internal operations by developing an EMS action plan and initiating development of the OECD Greening Government Website. Visit the Website at www.oecd.org/env/gog/index.htm

Industry Canada and Environment Canada (Atlantic Region), in partnership with the United Nations Environment Program (UNEP), prepared a *Guide to Environmental Management of Industrial Estates*. A training package was also developed and formed the basis for a south-east Asia regional training workshop held in Thailand in 1997.

In March 1998, Environment Canada participated in the first meeting of a five-year NATO Pilot Study on Cleaner Processes and Cleaner Products. The primary focus of the study is to share information, tools and methods related to clean processes and technologies.

Transport Canada, in conjunction with the International Civil Aviation Organization, is working to reduce emissions of nitrogen oxides and volatile organic compounds from aircraft.

In December 1997, Environment Canada (Headquarters) hosted the first OECD international workshop on the waste minimization policy of Extended Producer Responsibility (EPR).

Government, industry, international organization and environmental group representatives from 11 OECD member countries attended the event. The outcomes from the workshop will provide input into the development of an EPR guidance manual for governments.

THE MONTREAL PROTOCOL: AN INTERNATIONAL SUCCESS STORY

In September 1997, representatives from 120 parties to the **Montreal Protocol on Substances that Deplete the Ozone Layer** participated in the Ninth Meeting of the Parties. This marked the 10th anniversary of the signing of the Protocol — an international agreement controlling the production and consumption of ozone-depleting substances. Since its signing 10 years ago, the Protocol has been amended and strengthened.

An independent study of the benefits and costs of the Montreal Protocol, commissioned by Canada, found it had resulted in significant benefits. The Protocol has driven technological innovation; enabled all nations to share its benefits; and offers important lessons regarding international cooperation on global environmental challenges.

Canada hosts the International Secretariat for the Multilateral Fund of the Montreal Protocol (MFMP), and through the fund continues to provide bilateral assistance to a number of developing countries. The MFMP, financed by developed countries, provides financial and technical assistance to developing countries so that they are able to meet their obligations to the Protocol at no net cost to their economies.

Moving Forward

The integration of environmental considerations into daily activity is becoming more and more a reality as the application of pollution prevention expands and effective partnerships are created.

Though progress has been made in incorporating pollution prevention into many of the decisions and activities of government, companies, communities and individuals, work remains if the goals of the federal Pollution Prevention Strategy are to be achieved.

The initiatives highlighted in this publication, *Progress in Pollution Prevention 1997-1998*, confirm that the number of sectors applying prevention is increasing and the practices and processes used are diversifying. This broadening of activity across the programs and operations of government, business and industry helps to yield results and benefits that are both effective and efficient. It also confirms the Government of Canada's commitment as stated in *Securing Our Future Together: Preparing Canada for the 21st Century* (Red Book II). That commitment is "to expand the application of the federal Pollution Prevention Strategy across federal legislation, programs and policies."

To further demonstrate the range of pollution prevention initiatives being implemented and new partnerships being developed, all federal departments are encouraged to record their prevention efforts for the 1998-1999 fiscal year for inclusion in the next annual report. Progress will continue to be reported according to the five target sectors of the federal Pollution Prevention Strategy and will focus on the environmental results of the reported activities. The inclusion of pollution prevention as the cornerstone of the renewed *Canadian Environmental Protection Act* will further put prevention into practice by providing authority for pollution prevention planning for toxic substances.



As important as documenting the progress made in pollution prevention, this report also provides Canadians with concrete examples of prevention activities, their environmental results and associated economic advantages. Finally, *Progress in Pollution Prevention 1997-1998* recognizes industrial sectors and individual companies that lead the way in preventing pollution through innovative techniques, technologies, processes and practices that also save money and improve competitiveness at home and abroad.

The Pollution Prevention Coordinating Committee invites all Canadians to confirm their commitment to a healthy environment by adopting a pollution prevention philosophy. By continuing to work together to tackle the goal of preventing pollution at the source, Canadians will foster sustainable development and secure both a healthy environment and a healthy economy.

THE KYOTO PROTOCOL

In December 1997, representatives from Canada and 160 other countries met in Kyoto, Japan, and agreed to a Protocol that calls for further reductions in greenhouse gas emissions. The Government of Canada has made a commitment to reduce our emissions to 6% below 1990 levels between 2008 and 2012.

Appendix I

Pollution Prevention Coordinating Committee Membership List

ENVIRONMENT CANADA HEADQUARTERS

ENVIRONMENTAL PROTECTION SERVICE

Toxics Pollution Prevention

Directorate

James Riordan (Chairperson)
John de Gonzague (Alternate
Chairperson)
Ghislaine Dunberry (Coordinator)
David Bowie

Air Pollution Prevention Directorate

Peggy Farnsworth

Environmental Technology

Advancement Directorate

Adrian Steenkamer/Mike Bumbaco
Peter Seto (Burlington Environmental
Technology Office)

National Programs

Lynn Provost/Nicole Casault

Regulatory Affairs & Program Integration

Arthur Sheffield

Communications

Louise Power

POLICY & COMMUNICATIONS

Craig Ferguson

CORPORATE SERVICES

Elyse Routhier

ENVIRONMENT CANADA REGIONS

Atlantic Region

Rodger Albright

Quebec Region

Jean Tremblay/Claire Marier

Ontario Region

Tom Tseng/Brad Cumming/
Ron Nobes (Federal Programs)

Prairie & Northern Region

David Noseworthy

Pacific & Yukon Region

Lisa Walls/Andrew Green

OTHER GOVERNMENT DEPARTMENTS

INDUSTRY CANADA

Environmental Affairs Branch

Ron Harper
Nada Vraniy

NATIONAL DEFENCE

Environmental Protection Directorate

Holmer Berthiaume

CANADIAN INTERNATIONAL DEVELOPMENT AGENCY

Environment and Natural Resources Division, Policy Branch

Louis-Philippe Mousseau

FISHERIES AND OCEANS CANADA

Realty Management — Finance and Administration

Denise Lapratte

PUBLIC WORKS AND GOVERN- MENT SERVICES CANADA

Environmental Services

Monique Theriault

TRANSPORT CANADA

Environmental Affairs

Alec Simpson
Saleem Sattar

DEPARTMENT OF FOREIGN AFFAIRS AND INTERNATIONAL TRADE

Environmental Services (JEN)

Thomas Gillmore

NON-GOVERNMENT ORGANIZATIONS

CANADIAN CENTRE FOR POLLUTION PREVENTION

Marianne Lines





Environment
Canada

Environnement
Canada

Canada

Pollution Prevention: A federal strategy for action Progress in Pollution Prevention: 1996-1997

The federal government defines pollution prevention as *"the use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and waste, and reduce the overall risk to human health or the environment."*

Pollution prevention seeks to eliminate the causes of pollution rather than treating the symptoms. It promotes continuous improvement through operational and behavioral changes.

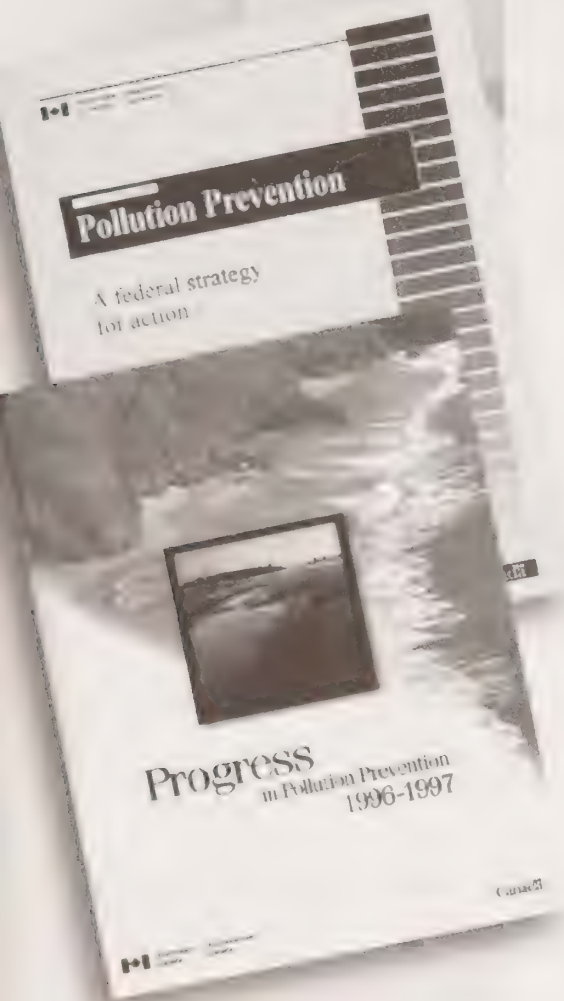
Pollution Prevention: A federal strategy for action, released in 1995, presents the federal action plan for pollution prevention. It emphasizes the need for individuals, companies, communities and governments to make pollution prevention a part of our everyday activities and decisions.

For more information, visit Environment Canada's Green Lane at http://www.ec.gc.ca/pollution/strategy/plt_pl_e.htm

Progress in Pollution Prevention 1996-1997

This report provides an update on progress made in pollution prevention for the fiscal year ending March 31, 1997

For more information, visit Environment Canada's Green Lane at <http://www.ec.gc.ca/p2progress>



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La prévention de la pollution : Une stratégie fédérale de mise en oeuvre

Progrès en matière de prévention de la pollution : 1996-1997

Le gouvernement fédéral définit la prévention de la pollution comme suit : « *l'utilisation de procédés, de pratiques, de matières, de produits ou de formes d'énergie qui empêchent ou qui minimisent la production de polluants et de déchets et le gaspillage, tout en réduisant, dans l'ensemble, les risques pour la santé humaine ou l'environnement.* »

La prévention de la pollution vise à éliminer les causes de la pollution plutôt qu'à ne se pencher que sur les symptômes. Elle encourage le perfectionnement continu en améliorant l'efficacité de la production et en modifiant notre façon d'agir.

La prévention de la pollution : Une stratégie fédérale de mise en oeuvre, publiée en 1995, présente le plan d'action fédéral en matière de prévention de la pollution. Elle insiste sur la nécessité de tenir compte de la prévention de la pollution dans nos activités et nos décisions quotidiennes, qu'il s'agisse du secteur public, d'entreprises, de collectivités ou de simples citoyens.

Pour de plus amples renseignements, visitez la
Voie verte d'Environnement Canada à l'adresse suivante :
http://www.ec.gc.ca/pollution/strategy/plt_pl_f.htm

Progrès en matière de prévention de la pollution 1996-1997

Ce rapport fait état des résultats obtenus en matière de prévention de la pollution au cours de l'exercice se terminant au 31 mars 1997.

Pour de plus amples renseignements, visitez la Voie verte d'Environnement Canada à l'adresse suivante : <http://www.ec.gc.ca/p2progress>

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1998-1999

PROGRESS IN POLLUTION PREVENTION

THE ANNUAL REPORT



Environment Canada
Ministère de l'Environnement

Canada

Progress in Pollution Prevention 1998-1999: Annual Report of the Pollution Prevention Coordinating Committee

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This document is also available on Environment Canada's Green Lane at:
<http://www.ec.gc.ca/p2progress>

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Minister's Message

I am pleased to present the fourth annual report of the federal Pollution Prevention Coordinating Committee (P2C2) — *Progress in Pollution Prevention 1998-1999*.

This is the first year the report is published as a Government of Canada document. This demonstrates the continued cooperation of pollution prevention initiatives across the federal government; the report also provides a more comprehensive record of the Government's pollution prevention activities.

Progress in Pollution Prevention 1998-1999 highlights the federal government's achievements in cooperation with other governments, the private sector, the international community and with individual Canadians in incorporating pollution prevention initiatives into its operations from April 1998 to March 1999. The responsibility lies with all of us to ensure that Canada becomes a model of environmental excellence, not only in government operations, but in all areas of the economy and society.

The initiatives profiled in this year's report show how the Government of Canada is advancing pollution prevention by working in partnership with the private sector. Together, we are developing pollution prevention programs, guidelines and codes of practice for industrial operations and international agreements for global action. We are also supporting local community action projects that promote energy efficiency and water conservation.

From coast to coast to coast, individual Canadians, private industry and governments are contributing to this effort by recognizing that minimizing or avoiding the creation of pollutants is a more cost-effective method of environmental protection than treating or cleaning-up pollutants after they have been created or released into the environment. These changes lead to lower production costs, increased efficiencies and better environmental protection policies.

This report reinforces the Government of Canada's priorities which stress regular reporting by federal government departments and continued and improved access to the information Canadians need to make informed decisions about human health and environmental matters, including clean air and clean water. A clean and healthy environment is essential for Canada's long-term economic and social well-being — it is critical in achieving a higher quality of life and sustainable development for all Canadians.



David Anderson

The Honourable David Anderson
Minister of the Environment

"THE GOVERNMENT OF CANADA

is taking a strong leadership role in environmental protection by making pollution prevention the cornerstone of the new *Canadian Environmental Protection Act, 1999*."

The Honourable David Anderson
Minister of the Environment

Executive Summary

Canada stands committed to pollution prevention as the most effective means of protecting human health and the environment.

Progress in Pollution Prevention 1998-1999 showcases the federal government's achievements in incorporating pollution prevention into its own activities and those of its partners. This is the fourth annual report prepared by the federal Pollution Prevention Coordinating Committee. The report focuses on the progress made against the goals stated in the Federal Pollution Prevention Strategy and Action Plan during the year ending March 31, 1999, and demonstrates the federal government's leadership and commitment to pollution prevention. This year, all federal departments were encouraged to record their prevention efforts, and actions were taken to provide more results-based reporting.

Pollution Prevention—A Federal Strategy for Action sets priorities for action based on the five target sectors: federal departments and agencies, other orders of government, the private sector, individual Canadians and the international community. By directing efforts toward preventing pollution instead of managing it after it has been created, the federal strategy works toward the ultimate environmental goal of sustainable development.

This Year's Accomplishments

The Government of Canada is advancing pollution prevention through modernizing legislation and regulations; developing pollution prevention programs, guidelines and codes of practice for industrial operations; working in partnership with the private sector, other orders of government and communities; supporting non-regulatory initiatives; and participating in developing and implementing international agreements.

Progress within the Federal Government

The *Canadian Environmental Protection Act* has been revisited and strengthened by making pollution prevention the cornerstone of national efforts to reduce toxic substances in the environment. The renewed Act contains new powers for getting toxic

substances out of the environment, avenues for greater citizen participation, new powers for the control of pollutants and waste, tools for further enforcement, and provisions for strengthening and extending partnerships with key stakeholders.

Federal initiatives, such as the Toxic Substances Management Policy, Greening of Government Operations and the National Pollutant Release Inventory, remain the foundation for the more detailed policy, operational and measurement frameworks needed for successful delivery of preventive environmental care. In greening operations, Agriculture and Agri-Food Canada, Public Works and Government Services Canada and the Department of National Defence have undertaken energy and water conservation initiatives. These initiatives are realizing significant savings. Vehicle fleet management initiatives employed by Transport Canada, Natural Resources Canada and Environment Canada have resulted in improved vehicle performance and reductions in greenhouse gas emissions.

Departments are using pollution prevention to meet or exceed the requirements of environmental regulations and policies. The Department of National Defence is actively promoting the reduction of toxic substances through eliminating substances such as CFC-113 and halon. Public Works and Government Services Canada reported more than half of its Crown-owned facilities pesticide-free this year.

Federal departments are committed to providing general environmental awareness training to all staff. They are moving toward specific pollution prevention training to address environmental liabilities for internal operations and external clients.

Progress with Other Governments

Through the Canada-Wide Accord on Environmental Harmonization, the Canadian Council of Ministers of the Environment, federal, provincial and

Executive Summary (continued)

territorial governments and agencies are working collaboratively to achieve Canada-wide standards for toxic substances management. These standards will provide a basis for implementing consistent and uniform prevention and control measures and operating standards for industrial facilities across Canada.

Environment Canada continues to lead work on ecosystem initiatives, including initiatives for British Columbia's Georgia Basin, the Northern Rivers that flow through Alberta and the Northwest Territories, and the Great Lakes Basin. Environment Canada also provides technical and strategic support to local governments including the Halifax Regional Municipality.

Recent joint efforts of the provincial and federal governments to address climate change and acid rain will create future opportunities to prevent pollution through initiatives such as "green power"—electricity produced from renewable resources.

The health concerns faced by northern Canadians and First Nations in their environments received renewed focus through international agreements and community-based activities.

Progress with the Private Sector

Investment in research and development has led to new and innovative ways of preventing pollution at home and abroad. The National Research Council, Natural Resources Canada, Industry Canada and Environment Canada have provided technical and financial support to commercialize and market Canadian pollution prevention technologies through programs such as the Industrial Research Assistance Program, Climate Change Action Fund and Technology Partnerships Canada, through research institutes such as Environment Canada's Environmental Technology Centre, and through bilateral projects with other countries funded by the Canadian International Development Agency and other donors. Many of these technologies are promoted through Canadian Environmental

Solutions, an Internet-based information tool.

Through agreements with private sector corporations and associations, governments in Canada are pursuing non-regulatory approaches to reduce the use of toxic substances. Through voluntary participation in the Accelerated Reduction and Elimination of Toxics (ARET) program, industry and government departments have made progress toward the stated ARET goals and are committed to further reductions in releases to the environment. Other private sector initiatives profiled in this report include: best environmental practices for the agriculture industry, led by Agriculture and Agri-Food Canada; environmental management plans for small craft harbours, led by Fisheries and Oceans Canada; and the prevention and treatment of mine, mill and metallurgical effluents, led by Natural Resources Canada.

The unique needs of small and medium-sized enterprises have been recognized by Environment Canada through programs that address green procurement, energy efficiency, environmental management and technological support.

Progress with the Canadian Public

Citizens and consumers were provided with improved access to pollution prevention information through Internet products such as the Canadian Pollution Prevention Information Clearinghouse and the Water Efficiency Experience Database.

Local community action to address environmental issues receives continued support through projects that promote energy efficiency, water conservation and environmentally responsible products and services. Projects are aimed at a variety of public audiences including households, recreational boaters and consumers.

Progress with the International Community

The Government of Canada continues to represent Canada's environmental interests abroad by participating in the

development and implementation of protocols and conventions for global action, and through scientific cooperation. The year 1998-1999 marked the signing of the Kyoto Protocol, the signing and ratifying of both the Persistent Organic Pollutants and Heavy Metals Protocols and the ratifying of new amendments in the Montreal Protocol.

The Canadian International Development Agency continues to promote pollution prevention abroad through the implementation of environmental technologies in sectors such as petroleum, textiles and manufacturing. The Government of Canada remains an active participant in initiatives aimed at the Asia-Pacific region, including the China-Canada Cooperation Project in Cleaner Production, the Program of Action on Sustainable Cities and various technology exchange programs.

National Defence began the first year of a three-year joint project with the United States Department of Defense and the private sector. The Canada-United States Hard Chrome Replacement Project is aimed at replacing the chrome electroplating process currently used to refinish aircraft landing gear components with a more environmentally responsible replacement technology.

Moving Forward

This report, *Progress in Pollution Prevention 1998-1999*, highlights initiatives which confirm that the practice of pollution prevention is expanding across the targeted sectors and that the techniques and processes used for pollution prevention are evolving to address national and global challenges.

The successes achieved in 1998-1999 leave the Government of Canada well-positioned to support a clean and healthier environment in the new millennium.

Strengthening the Pollution Prevention Framework

The policies that support pollution prevention are designed to protect the health of Canadians and the environment as well as provide direction and consistency to all sectors of the Canadian economy.

The federal government defines pollution prevention as: *The use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and waste, and reduce overall risk to human health or the environment.* Pollution prevention seeks to eliminate the causes of pollution rather than to treat the waste generated. It involves continuous improvement through design, technical, operational and behavioural changes. Pollution prevention encourages changes that are likely to lead to lower production costs, increased efficiencies and more effective protection of the environment.

Pollution prevention practices and techniques focus on such areas as: substances of concern, efficient use and conservation of natural resources, reuse and recycling on-site, materials and feedstock substitution, operating efficiencies, training, procurement techniques, product design, process changes, product reformulation, equipment modifications and clean production.

Pollution prevention:

- Minimizes or avoids the creation of pollutants
- Prevents the transfer of pollutants from one medium to another
- Accelerates the reduction and/or elimination of pollutants
- Minimizes health risks
- Promotes the development of source reduction technologies
- Uses energy, materials and resources more efficiently
- Reduces the need for costly enforcement
- Limits future liability with greater certainty
- Recognizes that waste is a cost that can be reduced
- Avoids costly clean-up in the future
- Promotes a more competitive economy

THE ENVIRONMENTAL PROTECTION HIERARCHY

The long-term goal of environmental protection is to prevent the creation of pollutants and waste and to produce durable, recyclable, less hazardous goods. While all environmental protection methods provide some benefits, opportunities for reducing environmental and health risks and associated costs are greater at the top of the environmental protection hierarchy. Pollution prevention is highest on the hierarchy. Approaches that avoid and minimize the creation of pollutants and waste are preferred over other methods such as off-site reuse and recycling, remediation, disposal, pollution control and energy recovery. These are important environmental protection efforts, but are not as effective as avoiding the creation of pollution and waste in the first place.

POLLUTION PREVENTION PRACTICES AND TECHNIQUES

Using and conserving natural resources efficiently

Substituting "clean" and green materials and feedstock

Thinking "green" for purchasing, product design and reformulation, process changes, equipment modifications and production

Reducing inputs and waste, on-site reuse and recycling

Training everyone in pollution prevention techniques

Introducing cleaner operating practices

Federal Pollution Prevention Strategy

Pollution Prevention—A Federal Strategy for Action is the Government of Canada's policy framework for advancing pollution prevention as the cornerstone of environmental protection. Endorsed by the federal ministers in June 1995, the strategy elaborates on government policy and sets priorities for action based on five goals involving partnerships with federal departments and agencies, other orders of government, the private sector, individual Canadians and the international community.

The goals of the Federal Pollution Prevention Strategy include the following:

- Within the federal government: institutionalize pollution prevention across all federal government activities
- With other governments: foster a national pollution prevention effort
- With the private sector: achieve a climate in which pollution prevention becomes a major consideration in industrial activities
- With all Canadians: provide access to the information and tools necessary

Section 1: Strengthening the Pollution Prevention Framework (continued)

- to implement pollution prevention practices
- With the international community: participate in international pollution prevention initiatives

Federal Pollution Prevention Coordinating Committee

Established in 1992, the federal Pollution Prevention Coordinating Committee (P2C2) collectively promotes the implementation of *Pollution Prevention—A Federal Strategy for Action* (1995) by encouraging the practice of pollution prevention throughout the federal government and with the federal government's clients. Environment Canada chairs the committee. The current committee members, listed below, consist of representatives from 10 federal departments and agencies, two more than the previous reporting year:

- Environment Canada
- Natural Resources Canada
- Industry Canada
- The Department of National Defence
- The Canadian International Development Agency
- Fisheries and Oceans Canada
- Public Works and Government Services Canada
- Transport Canada
- The Department of Foreign Affairs and International Trade
- Agriculture and Agri-Food Canada

Progress in Pollution Prevention, the annual report of the P2C2, was first published in 1996. This annual report informs Canadians and government officials of both national progress in pollution prevention and pollution prevention achievements and successes across the country. By relating progress to the five target sectors of the Federal Pollution Prevention Strategy and Action Plan, this progress report provides a framework for monitoring performance and profiling federal environmental successes.

The first three annual reports of the P2C2 were published as Environment Canada documents. This year's report is published as a Government of Canada document in recognition of pollution prevention's continued promotion across federal government departments. The number of federal department and agency contributors to this report has expanded from seven last year to 21 this year.

Putting the Strategy into Practice

Within Canada, jurisdiction for the environment is shared by the municipalities, provinces, territories and the federal government. The Canadian Council of Ministers of the Environment (CCME) has become Canada's premier forum for intergovernmental discussion and action on environmental issues. The Council comprises environment ministers from the federal, provincial and territorial governments. Its mandate is to improve environmental protection and promote sustainable development in Canada.

In 1993, the CCME contributed to the evolution of pollution prevention in Canada by releasing the *National Commitment to Pollution Prevention*. In May 1996, the CCME again addressed pollution prevention by releasing *A Strategy to Fulfill the CCME Commitment to Pollution Prevention*. This strategy sets out a shared vision, mission and goal statement as well as guiding principles for the implementation of pollution prevention by all provinces, territories and the federal government. As stated in the CCME strategy, pollution prevention is a shared responsibility among governments, individuals and industrial, commercial, institutional and community sectors.

POLICIES AND REGULATIONS SUPPORTING POLLUTION PREVENTION

<i>Canadian Environmental Protection Act</i>	1988
Canadian Council of Ministers of the Environment National Commitment to Pollution Prevention	1993
Greening of Government Operations Policy	1995
Pollution Prevention—A Federal Strategy for Action	1995
Toxic Substances Management Policy	1995
<i>Auditor General's Act</i> pertaining to Sustainable Development Strategies	1995
<i>A Strategy to Fulfill the CCME Commitment to Pollution Prevention</i>	1996

The Government of Canada, along with stakeholders in the private sector, environmental non-government organizations, communities, labour and academia, is putting pollution prevention into practice through a mix of regulatory and non-regulatory instruments. This includes modernizing legislation and regulations, managing national programs, developing guidelines and codes of practice for industrial operations, supporting voluntary initiatives, ensuring accessibility to tools and information and implementing international agreements.

Progress within the Federal Government

Federal government departments, through the development and implementation of strategies, programs and projects, are institutionalizing pollution prevention within their operations.

ENVIRONMENT CANADA

administers the pollution prevention sections of the *Fisheries Act* (sections 34-42), which prohibit the deposit of deleterious substances into water frequented by fish.

For certain industries, regulations have been developed under the *Fisheries Act* to limit the deposition of potentially deleterious substances to levels that can be proven by site-specific effects monitoring programs to have no effect on the receiving environment. Fish habitat protection measures are addressed by Fisheries and Oceans Canada.

Legislation and Regulations

The Parliamentary Review of the *Canadian Environmental Protection Act* (CEPA) continued in 1998-1999. The Bill was referred to the Standing Committee on Environment and Sustainable Development on April 28, 1998. Hearings were completed on March 25, 1999. The renewed CEPA is expected to be in force by the spring of 2000, with pollution prevention the cornerstone. The renewed CEPA gives the government new powers to require pollution prevention planning for substances declared toxic under CEPA. Other provisions include:

- Implementing a "fast track" approach to evaluating and controlling toxic substances
- Ensuring the most harmful substances are phased out, or not released into the environment in any measurable quantity
- Improving enforcement of regulations
- Improving "whistle blower" protection to encourage more Canadians to report CEPA violations
- Allowing for more effective cooperation and partnership with other governments and Aboriginal peoples

Since environmental challenges, expectations, and legal and scientific knowledge are constantly evolving, the Act will be reviewed by a Parliamentary Committee every five years.

In 1998, the average level of sulphur in Canadian gasoline was 350 parts per million (ppm), among the highest in the

industrialized world. Air quality regulations to lower the allowable level of sulphur in gasoline sold in Canada were proposed in October 1998. The proposed regulations would reduce the sulphur content in gasoline to an average level of 30 ppm; this represents a 90% reduction from average levels



The Federal Smog Management Plan is helping reduce the release of particulate matter and ozone to the environment. During the summer months, every major Canadian urban centre has smog levels high enough to cause a health risk.

today. This requirement would be phased in over three years, from 2002 to 2005. A joint industry-government study estimated that over a 20-year period, low sulphur in Canadian gasoline will prevent over 2,100 premature deaths, 93,000 incidences of bronchitis in children, five million other health-related incidents such as asthma attacks, and 11 million acute respiratory symptoms. Also, 1998 was the first full year of application for regulations to control sulphur levels in on-road diesel fuel.

Toxic Substances/Clean Air

Based on the recommendations of the Dry Cleaning Strategic Options Report, prepared by Environment Canada and Health Canada, a proposal to regulate the use of perchloroethylene (PERC) in dry cleaning is

Section 2: Progress within the Federal Government (continued)

currently being drafted. This will result in the removal from service of first- and second-generation PERC dry cleaning machines (comprising 50-60% of existing machines). The proposal specifies solvent consumption rates for new dry cleaning machines and requires supplier take-back of PERC-contaminated waste. Discussion and consultation are ongoing with provincial fabricare associations regarding this proposal. The use of dry cleaning PERC is expected to be reduced from 5.5 kilotonnes in 1994 to 2.3 kilotonnes following the effective date in the proposed regulation.

Environment Canada and Health Canada completed a final draft report on the stakeholder consultations on dichloromethane. Dichloromethane is a versatile solvent used in a wide range of industrial process applications as well as being an active chemical in paint stripping and cleaning formulations. The control actions recommended in the report would reduce overall releases of dichloromethane from all uses by 50%, from about 6,300 tonnes to 3,100 tonnes/year. While implementation was originally to be undertaken through non-regulatory instruments, lack of participation by the industry sectors involved demonstrated that regulations would be more effective. Regulations are currently being drafted.

The National Pollutant Release Inventory (NPRI) was created to provide Canadians with information on the release of polluting substances into air, water and land. This information assists Environment Canada in the design of pollution prevention and abatement measures. In March 1999, the NPRI Ad Hoc Work Group on Substances released its recommendations to Environment Canada for adding 73 new substances to the NPRI. The NPRI will now provide information on 246 substances

TOXIC SUBSTANCES MANAGEMENT

The Toxic Substances Management Policy (TSMP) outlines a risk management process based on two key objectives: virtual elimination from the environment of toxic substances that are persistent, bioaccumulative, and primarily the result of human activity (Track 1); and life-cycle management of other toxic substances and substances of concern to prevent or minimize their release into the environment (Track 2). Environment Canada applies a pollution prevention approach and the precautionary principle to the management of both Track 1 and Track 2 substances. Environment Canada is implementing action plans to virtually eliminate the most dangerous toxic substances. Domestic action has already been taken to severely limit or ban the production, use, importation or release of these substances.

Environment Canada, Health Canada, other federal departments and provincial governments share responsibility for managing *Canadian Environmental Protection Act* (CEPA) toxic substances and, as such, are key partners in the development of prevention and control options for these substances. The Strategic Options Process was established in 1994 to develop management options for the 25 substances declared toxic under CEPA. Fourteen multi-stakeholder "Issue Tables", seven sector-based and seven substance-based, were established and chaired by Environment Canada. Each Issue Table develops recommendations for the most feasible way to address the problems associated with specific toxic substances. Management measures are being developed following recommendations from nine Issue Tables and work is proceeding to complete the tasks of the remaining five Tables.

TARGETED SECTORS

- | | |
|----------------------|-----------------------------|
| Dry Cleaning** | Base Metal Smelting* |
| Solvent Degreasing** | Metal Finishing* |
| Wood Preservation | Electric Power Generation** |
| Steel Manufacturing* | |

TARGETED SUBSTANCES

- | | |
|------------------------------------|----------------------|
| Benzidine/3,3'-Dichlorobenzidine** | Dichloromethane* |
| Refractory Ceramic Fibres* | Ethylhexyl Phthalate |
| Short Chain Chlorinated Paraffins | Hexachlorobenzene |
| Dichloroethane | |

* Recommendations made in 1998-1999

** Recommendations made before 1998-1999

of concern, of which 20 substances have been declared toxic under the *Canadian Environmental Protection Act*.

In September 1998, the Minister of Foreign Affairs presented a consultation paper entitled *Toward a Northern Foreign Policy for Canada*. It stated that Canada's new northern foreign policy would work toward achieving effective international measures to reduce transboundary contaminants and global climate change.

Environment Canada and its partners, Natural Resources Canada, Transport Canada, and Agriculture and Agri-Food Canada, are preparing a Phase 3 Federal Smog Management Plan. Phase 3 will be the initial federal

implementation response to the new Canada-wide Standards on particulate matter and ozone, which are being developed under the Canadian Council of Ministers of the Environment.



Section 2: Progress within the Federal Government (continued)

DEFINING THE PRECAUTIONARY PRINCIPLE

"Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

(Rio Declaration, 1992)

Sustainable Development and Environmental Management Systems

Pollution prevention helps protect the environment and make the Canadian economy more efficient and competitive, establishing it as a sound approach to achieving sustainable development. Twenty-seven departments and agencies are now required to prepare sustainable development strategies and action plans for tabling in the House of Commons. The Sustainable Development Strategy outlines each department's goals for integrating sustainable development into its policies, programs and operations. The Commissioner of the Environment and Sustainable Development is responsible for auditing these strategies. Environment Canada has coordinated and led federal efforts with respect to sustainable development through the Interdepartmental Network on Sustainable Development Strategies.

POLLUTION PREVENTION AND ENVIRONMENTAL MANAGEMENT IN GOVERNMENT OPERATIONS

Federal departments and agencies often share interests, mandates or responsibilities when it comes to government operations and sustainable development. Participation in interdepartmental groups is essential for addressing environmental accountability. This participation provides a forum for developing common tools, coordinating activities and sharing information.

Federal interdepartmental mechanisms in place to promote coordination include:

- Deputy Ministers' Sustainable Development Coordinating Committee
- Interdepartmental Network on Sustainable Development Strategies
- Federal Committee on Environmental Management Systems
- Pollution Prevention Coordinating Committee

An Environmental Management System (EMS) provides a systematic framework for practices, procedures and processes designed to help an organization manage its environmental obligations and document, evaluate and communicate its environmental performance. Led by

Environment Canada, the Federal Committee on Environmental Management Systems continues to advance the effective implementation of departmental Environmental Management Systems. Federal departments such as the Department of Foreign Affairs and International Trade, Health Canada and Transport Canada have made significant progress in developing and implementing an EMS that incorporates pollution prevention principles. Agriculture and Agri-Food Canada has initiated a recurring departmental Environmental Management Review process in concert with its EMS to provide a basis for verifying and managing the implementation of more efficient and less polluting practices.

Waste Reduction

During this reporting period, construction, renovation and demolition (CRD) waste was diverted by Public Works and Government Services Canada in eight of 43 public works projects and reused on-site where feasible. For example, a demolition project in Pleasantville, Newfoundland, diverted from landfill windows, doors, electrical wire components, wood sheathing, structural wood members and framing, heating units (radiators, boilers), steel and copper piping and reinforcing steel from concrete foundations. The concrete itself was crushed and used as fill on-site. The Department also worked with National Defence to develop two publications for use by all Canadian Forces bases undertaking CRD projects.

A solid waste audit conducted at Transport Canada headquarters showed improvements in the Department's "No Waste" Program. For instance, the retrofitting of network printers for duplex printing has resulted in a 4% reduction in usage of single-sided paper.

At Canadian Forces Greenwood, 14 Wing integrated vermi-composting into its waste reduction plan to aid in the diversion of solid waste sent to landfill. The vermi-composting facility received an award from the Nova Scotia Department of

Section 2: Progress within the Federal Government (continued)

GREENING GOVERNMENT OPERATIONS

The Greening of Government Operations policy reiterates the federal government's commitment to comply with applicable environmental legislation. This includes, for example, all federal regulations under the *Canadian Environmental Protection Act* (CEPA) and the *Fisheries Act*. Part IV of CEPA (1988) gives the federal Minister of the Environment authority to regulate waste handling, disposal practices and emissions and effluents from the activities of federal organizations and to make regulations and guidelines for environmental protection that apply to

federal lands, works and undertakings. To date, one regulation on federal PCB destruction, one guideline governing the use of glycol at federal airports, one guideline on the management of underground storage tanks and a regulation that requires annual storage tank compliance reporting have been introduced under Part IV. Examples of pollution prevention and other environmental protection actions being taken across the country to "green" federal departments and agencies are provided below.

WASTE MANAGEMENT

- Waste audits performed and updated annually
- Waste reduction action plans developed and implemented
- Recycling system in place; composting where feasible
- Hazardous waste collected centrally, stored and disposed of safely

WATER/ENERGY CONSERVATION

- Audits performed
- Conservation plans developed and implemented
- Water/energy-saving equipment and devices specified for future purchases (e.g. water-efficient fixtures, energy-efficient lighting and water heating)

VEHICLE FLEET MANAGEMENT

- Fuel efficiency maximized and alternative fuels used to conserve energy and reduce emissions
- Number of vehicles for departmental use reduced
- Emission testing and regular maintenance performed
- All used vehicle fluids and oils recycled

PROCUREMENT

- "Green" clauses included in service and supply contracts
- Harmful chemical usage minimized (cleaning products, solvents, oil-based paints)

TRAINING AND AWARENESS

- Staff trained in methods and informed of opportunities to conserve water and energy, reduce waste and make environmentally sensitive purchasing decisions
- Raising employees' awareness to optimize pollution prevention in their activities

REMEDIAL ACTIONS

- Equipment using CFCs and halons identified and alternatives introduced wherever possible
- Equipment containing PCBs phased out and PCBs not in use securely stored
- Fuel storage tanks to meet the new guidelines and be checked regularly for leakage

ACTIONS TAKEN

The headquarters building for the Department of Justice undergoes an annual waste audit by Public Works and Government Services Canada. Zero-waste programs have been successfully implemented by Transport Canada, National Defence and Environment Canada.

ACTIONS TAKEN

The Department of Foreign Affairs and International Trade conducted energy audits of some of its buildings abroad to determine how they could be retrofitted for increased energy efficiency and to identify ways of reducing energy consumption.

ACTIONS TAKEN

Transport Canada has helped reduce emissions by introducing nine dual-fuel (natural gas/gasoline) vehicles into Ontario Region's operations.

ACTIONS TAKEN

Statistics Canada utilizes an automated material management information system, an internal system available to federal government departments. This procurement and inventory system provides access to all "environmentally preferred products".

ACTIONS TAKEN

Industry Canada has developed a training module on green procurement, a green driver training package and a catalogue on green products and sources. Environment Canada and Health Canada have developed similar materials for their employees.

ACTIONS TAKEN

At year end, 67% of Public Works and Government Services Canada (PWGSC) facilities were reported free of PCBs. PWGSC has met all requirements of the Storage Tank Registration Regulations. PWGSC has decreased the ozone-depleting potential of chillers in Crown-owned PWGSC inventory.

Environment. Resource Recovery Board, for the "Most Innovative Manufacturing Initiative". Benefits include diverting solid waste from landfill as well as producing two marketable by-products: worm castings (fertilizer) and worms

metal rather than disposable nylon. One metal sieve can replace 500 to 1,000 disposable sieves, drastically reducing waste. Similarly, organic solvent waste from the use of acetone and methylene iodide has been eliminated through the reclamation and reuse of these two solvents.

Natural Resources Canada has made significant reductions in its lab wastes. All sieves used in sample preparation and grain size analysis are made of

Section 2: Progress within the Federal Government (continued)

GREEN PROCUREMENT

As the largest single buyer and property manager in Canada, the Government of Canada can play a leadership role in advancing green procurement. Federal government departments and agencies spend approximately \$10 billion annually on contracts for goods and services.

GREEN POWER

Environment Canada and Natural Resources Canada have set purchasing targets of 15-20% green power for their energy needs by 2010. Green power includes electricity produced from renewable resources such as wind, biomass, small-scale hydroelectricity or solar energy. By displacing existing power generation, green power reduces the emissions of carbon dioxide and other pollutants.

Energy Efficiency/Water Conservation

The Federal Buildings Initiative (FBI) is a voluntary program developed by Natural Resources Canada to help government departments and agencies improve the energy efficiency of their facilities. The FBI reduces the cost of government operations, generates jobs and lowers greenhouse gas emissions. In many buildings, annual energy savings of 10 to 15% can be achieved by implementing relatively simple measures such as high-efficiency fluorescent lights and motors, and heating/cooling system upgrades. For instance, Health Canada initiated an FBI project in its Scarborough Laboratory with projected savings of \$250,800 annually. Environment Canada was instrumental in implementing the first FBI in a leased facility; the resulting energy savings to the Crown were approximately \$211,000 annually.

Agriculture and Agri-Food Canada's Lethbridge Research Centre is undertaking a lighting retrofit project. Not only will this initiative result in better quality light, but it will also save approximately 38,000 kilowatt-hours per year, resulting in a reduction of approximately 42 tonnes per year of carbon dioxide into the atmosphere.

National Defence has reduced energy consumption by 14% since 1989-1990. The Department has improved its energy efficiency by adopting energy conservation best practices and by investigating energy-saving contract opportunities. Energy performance contracts are ongoing at various Canadian Forces bases. Similarly, departmental use of water is down by 45% since 1989-1990. The reductions were achieved through the retrofitting and renovation of existing facilities and the design of new facilities.

Water conservation measures were implemented in 128 Crown-owned Public Works and Government Services Canada facilities by the end of March 1999. This represents 55% of building inventory in

terms of floor area, up significantly from 33% last year.

Operations/Facility Management

During 1998-1999, the Environmental Marine Technical and Support Services Section of the Canadian Coast Guard (CCG) developed and implemented green policies with assistance from Environment Canada. Pilot projects involving environmental management and pollution prevention measures were implemented at CCG Base Prescott and on the ship CCGS SIMCOE.

More than half of the Public Works and Government Services Canada Crown-owned facilities were reported as pesticide-free for 1998-1999. Of the remaining facilities, 64 have established integrated pest management plans, a significant improvement over the 23 established in 1997-1998. A best-practice standard for integrated pest management will be developed and promoted by the Department.

National Defence has amended its Environmental Protection and Stewardship Policy to incorporate the principles of pollution prevention in day-to-day activities and operations. National Defence has also developed a Halocarbon Management System to manage halocarbons found in refrigeration, air-conditioning and fire-extinguishing systems. The intent of the system is to manage and monitor the use of halocarbons, which in turn will protect the ozone layer and reduce greenhouse gas emissions. The Canadian Forces eliminated the use of CFC-113, an ozone-depleting substance, from the processes used to clean aircraft oxygen systems and underwater diver breathing apparatus through the implementation of the U.S. Navy's Naval Oxygen Cleaning process. As well, upon examining total operations, National Defence identified 106 high-risk hazardous products, 55 (52%) of which were eliminated from use in 1998-1999 through pollution prevention techniques.

Section 2: Progress within the Federal Government (continued)



Photo: Tamara Gates

Environment Canada vehicle emission testing at Nova Scotia Community College resulted in improved vehicle performance and reductions in harmful emissions.

The Natural Resources Canada (NRCan) Fleet Management Program has reduced greenhouse gas emissions through the reduction of vehicle inventory, more efficient use of the remaining vehicles and the adoption of alternative fuels. Since April 1, 1995, NRCan has reduced its fleet by 227 vehicles (32%), from 700 vehicles to 473. NRCan also has 92 alternative-fuel vehicles, 19% of the total fleet.

Working with a Halifax community college, Environment Canada had automotive students test its Halifax vehicle fleet for unacceptable emissions. Of 27 vehicles, seven did not meet Environment Canada's established emissions requirements and were subsequently either repaired and retested, or replaced. The testing resulted in improved vehicle performance and reductions in emissions of carbon dioxide and other pollutants, such as carbon monoxide.

Procurement

Environment Canada now uses EcoLogo™ cleaning products in its Queen Square, Dartmouth, offices. EcoLogo™ cleaners are used throughout the building and account for 77% of the cleaners. Carpets are

cleaned with EcoLogo™ shampoo, and EcoLogo™ dish-washing soap and all-purpose cleaner are used in all staff kitchens. Using these cleaning products reduces the use and discharge of harmful chemicals.

Environment Canada's Atlantic Region designed and conducted a Green Hotel Survey to gather information about environmental initiatives at hotel facilities. The results provide staff with guidance in choosing environmentally responsible hotels for both meetings and accommodations.

Public Works and Government Services Canada continues to set up standing offers for "green" goods and services. As of March 1999, there were 70 "green" standing offers, including 56 national standing offers, 10 regional standing offers and four departmental individual standing offers (for alternative-fuel vehicles).

Training and Awareness

With input from Environment Canada, the Atlantic Canada Opportunities Agency established a focus group in October 1998 to develop training packages for its internal account managers. Upon receiving training, the account managers will be able to

promote eco-efficiency (energy and resource efficiency) and support environmental industries across Atlantic Canada.

National Defence's Environmental Training Program provides training to Unit Environmental Officers (UEnvOs) through specialty topic lectures and General Environmental Awareness Training (GEAT). In 1998-1999, 150 UEnvOs were trained, 103 personnel received specialty topic lectures and GEAT was provided to over 1,500 personnel. In addition, the Department spent approximately \$1.4 million on spill and emergency response equipment and approximately \$400,000 on spill and hazardous materials training at various Canadian Forces bases.

Environment Canada's Quebec Region delivered pollution prevention training to employees of the Environmental Protection Branch. The training raised awareness among all 66 employees. Its objectives were to review the Federal Pollution Prevention Strategy and Action Plan and to increase pollution prevention activities in the Region. Similarly, Environment Canada's Pacific and Yukon Region delivered a pollution prevention information workshop to 85% of Whitehorse Environmental Protection staff.



Photo: Environment Canada
1998-1999

Progress with Other Governments

All levels of government in Canada are working in close cooperation to ensure that environmental protection is effective and efficient.

National Partners

The Canadian Council of Ministers of the Environment (CCME) works to promote cooperation on and coordination of interjurisdictional issues such as waste management, air pollution and toxic chemicals. Under the mandate of the CCME, federal, provincial and territorial government agencies are developing Canada-wide standards for priority substances, including mercury, dioxins and furans, ozone and particulates, and benzene. Each standard will be accompanied by action plans for the strict control or virtual elimination of these substances from particular sources or classes of sources. These plans will outline the changes necessary to accomplish required objectives of meeting and maintaining the standards for a given source or class of source.

Provincial, Territorial and Municipal Partners

The Atmospheric Environment Service of Environment Canada and the provincial government water resources agencies are replacing mercury manometers with electronic instruments at water survey gauging sites across Canada. Since April 1996, 56%, or 466 of 828 mercury manometers have been replaced. Full replacement will remove 281 kilograms of mercury.

In October 1998, federal, provincial and territorial energy and environment ministers met in Halifax to sign the Canada-Wide Acid Rain Strategy for Post-2000. The Strategy commits governments to establishing targets and timelines for reductions in sulphur dioxide emissions. In keeping with the pollution prevention approach, the Strategy also commits governments to keeping clean areas clean (areas that, at present, do not exceed critical loads) and to employing

pollution prevention strategies for all new sources of sulphur dioxide and nitrogen oxide.

The Ministers of Foreign Affairs and Indian and Northern Affairs Canada hosted the first ministerial meeting of the Arctic Council in Iqaluit in September 1998. The Council focused on protection of the Arctic environment and sustainable development as a means of improving the economic health and well-being of northern Canadians. Pollution prevention activities were included in the discussions.

Indian and Northern Affairs Canada, Environment Canada and Health Canada sponsored and participated in the Wskitqamu Maritime First Nations Environment Conference, which addressed environmental issues faced by the First Nations. About 60 First Nations representatives attended the two-day conference, which increased awareness of environmental issues, with pollution prevention highlighted as a preferred approach.

The City of Toronto, Toronto Renewable Energy Co-operative and Environment Canada are negotiating with Ontario Hydro to construct two wind turbines on the Toronto waterfront. Each wind turbine will generate 1,400 megawatt-hours of energy, enough to meet the needs of 250 to 300 households per year. Wind power produces no carbon dioxide, sulphur dioxide or nitrous oxide emissions.

The Georgia Basin Ecosystem Initiative was officially launched in December 1998 by Environment Canada and the British Columbia Ministry of Environment, Lands and Parks. The Initiative is being delivered in partnership with federal, provincial and local governments, First Nations, and community,

Section 2: Progress with Other Governments (continued)

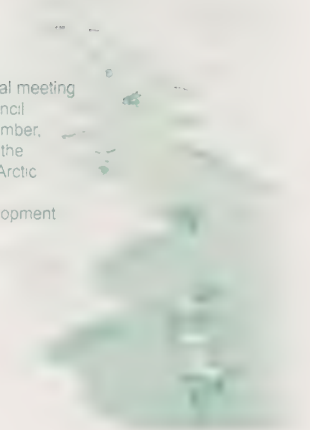
industry, university and non-government organizations. In all, over 100 projects were initiated during 1998-1999, aimed at achieving clean air and clean water and conserving and protecting species and habitat. Some projects will provide local governments and communities with scientific information and tools that will enable them to improve environmental quality and decision making around regional planning and growth strategies, liquid waste management plans and day-to-day decision making for sustainability.

The Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (COA) coordinates federal and provincial action to enable Canada to respond to its commitments under the Canada-United States Great Lakes Water Quality Agreement. Under COA,

1999 to address the impacts of the growing number of industrial developments, particularly pulp and paper and oil sands projects, within the Peace, Athabasca and Slave river watersheds. Under this initiative, the governments of Canada, Alberta and the Northwest Territories will focus on the issues of pollution prevention, contaminants and nutrients, endocrine disruption in fish, dissolved oxygen, hydrology and drinking water.

The Halifax Regional Municipality implemented the first phase of its Pollution Prevention Plan with continued technical support and strategic advice on at-source control issues from Environment Canada and the Nova Scotia Department of the Environment. Regulatory initiatives involved obtaining amendments in provincial legislation to accommodate

The first ministerial meeting of the Arctic Council in Iqaluit in September, 1998 focused on the protection of the Arctic environment and sustainable development



commitment to reduce greenhouse gas emissions to 6% below 1990 levels by the 2008 to 2012 time frame. The National Climate Change Secretariat, which includes representatives from federal, provincial and territorial governments, is working to develop a National Implementation Strategy to meet Canada's commitment. The development

1998 CCME POLLUTION PREVENTION AWARDS

The Canadian Council of Ministers of the Environment (CCME) gives national recognition to companies and organizations showing innovation or leadership in pollution prevention. The 1998 CCME Pollution Prevention Awards were presented to:

Canadian Auto Collision of Brantford, Ontario, for significantly reducing the amount of solvents used and the amount of volatile organic compounds and dust produced in its auto repair shop. The process and paint changes have resulted in cleaner air.

Lennox Industries (Canada) Ltd. of Etobicoke, Ontario, for reducing greenhouse gases through energy conservation and eliminating the use of 16 toxic substances in its Ontario manufacturing facilities.

Ford Motor Company of Canada, Limited, Windsor Casting Plant of Windsor, Ontario, for its innovative use of ozonation technology to reduce cyanide by 70% in its wastewater, its particulate and odour reduction programs toward cleaner air, and its phenol reduction and recirculation programs toward cleaner water.

Amici Enterprises Inc. of Calgary, Alberta, for its Envirowrapper, a reusable, lightweight pallet wrapper. It provides an effective, reliable and environmentally friendly alternative to stretch wrap for stabilizing and protecting pallet loads. Using the Envirowrapper reduces the production and disposal of plastic packaging waste.

For more details on the CCME and these awards, visit the CCME website at: <http://www.ccme.ca>.

of the national strategy involves 16 Issue Tables where 450 experts representing governments, the private sector, non-government organizations, universities and other organizations identify and assess greenhouse gas reduction opportunities. The Issue Tables report to federal and provincial energy and environment officials. Completion of the National Implementation Strategy is expected at the end of 2000.

the Great Lakes 2000 Program has made measurable environmental improvements in the Great Lakes Basin ecosystem through a cooperative effort of seven federal and four provincial ministries. For example, since 1994, pollutants in effluents from Ontario pulp mills have been reduced by over 82% and releases of dioxins and furans have been reduced by 77%.

The Northern Rivers Ecosystem Initiative was announced in February

municipal by-law changes toward pollution prevention and better enforcement. The educational aspect involved photo finishing, metal finishing and auto body repair business sectors in compliance promotion visits. Participants were also made aware of the technical support available through the Burnside Eco-efficiency Centre.

Addressing Climate Change

In April 1998, Canada signed the Kyoto Protocol on Climate Change and made a



Progress with the Private Sector

Through partnerships, federal government departments are preventing pollution by facilitating the private sector development and adoption of clean processes and green technologies.

ENVIRONMENTAL SOLUTIONS

To view the pollution prevention capabilities of Canada's best technology and service firms, visit Canadian Environmental Solutions (CES) at: <http://strategis.ic.gc.ca/CES>. Developed by Industry Canada, the CES site receives over 24,000 visits monthly.

Industrial Pollution Prevention

The Accelerated Reduction and Elimination of Toxics (ARET) program is a multi-stakeholder pollution prevention and abatement initiative involving industry, health and professional organizations, as well as governments across Canada. ARET seeks, through voluntary actions, the virtual elimination of 30 persistent, bioaccumulative and toxic substances and significant reductions in emissions of another 87 toxic substances. Overall releases of toxics included in the ARET program have dropped by 52% from 1993 levels (27% from 1995 levels). An update report will be produced in early 2000. It will include results achieved up to December 1998.

Environment Canada participated in the advisory committees for the British Columbia Ministry of Environment, Lands and Parks' industrial pollution prevention pilot projects at the Cominco Trail fertilizer operation and the Alcan Kitimat aluminum smelter. Pollution prevention plans for these two major industrial facilities were completed and implementation is underway.

Environment Canada reviewed the incorporation of pollution prevention in the design of a new sulphur terminal, a new ready-mix concrete plant and a new asphalt processing plant in British Columbia's Fraser River Basin. Pollution prevention guidelines for these and other industrial sectors were previously published by Environment Canada under the Fraser River Action Plan. Copies of the Fraser River Action Plan Final Report can be found at: <http://www.pyr.ec.gc.ca>.

Environment Canada, the *Ministère de l'environnement du Québec* and many partners launched Phase III of the St. Lawrence Action Plan, Vision 2000, which will be completed in 2003. Activities and projects with business and industry

sector enterprises will be based on a pollution prevention approach. The industrial and urban component of the Plan targets 60 plants in three industry sectors: chemicals, metallurgy and metal processing. Activities under Phase III will promote voluntary action and sound environmental management practices, and the implementation of pollution prevention initiatives designed to reduce 18 toxic substances. Launched in 1988, the Action Plan has achieved a 96% reduction in toxic effluent discharged by 50 high-priority industrial plants in its first 10 years of operation. Studies, reports and fact sheets on the Plan and its results are now available at the Program's Internet site at: <http://www.slv2000.qc.ec.gc.ca>.

Natural Resources Canada's Office of Energy Efficiency (OEE) manages programs that target all energy consumers and emphasize partnerships and economic investments. Some initial indicators of OEE program success for 1999 include the following:

- Minimum performance levels are now regulated for more than 20 energy-using products that account for 65% of overall residential energy use. These regulations have greatly improved the energy efficiency of new household appliances and equipment.
- The Commercial Building Incentive Program received 147 applications for funding to help offset the additional cost of designing more energy-efficient commercial buildings. Eight projects received funding in the start-up year (1998-1999) of this three-year program.
- More than 249 industrial companies representing about 75% of industrial energy use have been recruited as Industrial Energy Innovators; as such they agree to adopt and achieve voluntary energy efficiency targets.

Section 2: Progress with the Private Sector (continued)

Sector-Specific Initiatives

Agriculture

Agriculture and Agri-Food Canada's \$10 million National Soil and Water Conservation Program (NSWCP) provided funding in 1998-1999 for initiatives that encourage environmental sustainability in the agricultural and agri-food sector. For instance, the NSWCP has contributed to the expansion of agricultural environmental farm clubs in Quebec. Each club hires a consultant with agriculture and environmental expertise to work with each member to implement the best environmental practices for his/her operations. Club members learn about new methods of fertilization, pesticide use, soil conservation and management of water resources. In 1998-1999, there were 53 of these clubs, comprising 2,000 members. Other examples of NSWCP initiatives can be found at: <http://www.agr.ca/cb/vwater>.

In 1998-1999, the Hog Environmental Management Strategy (HEMS), a three-way partnership between the hog industry and federal and provincial governments, facilitated a coordinated approach to finding effective and affordable solutions to the environmental challenges the industry faces. Key environmental issues identified were: odour, air pollution, soil and water quality. HEMS' results include the launch of "Manurenet", which provides information on current research, available technologies and best management practices. HEMS is funded and led by Agriculture and Agri-Food Canada. For more information on HEMS, visit: <http://res.agr.ca/manurenet>.

Environment Canada initiated a livestock manure pollution prevention project in 1996. The project is co-chaired by Environment Canada and the Christian Farmers Federation of Ontario and is financially supported by various agricultural organizations and Ontario government ministries. The main objective of the project is to produce some verifiable approaches to reducing fish kills and fish habitat/water quality degradation caused by manure spills and runoff from livestock operations. Four brochures have been produced and distributed across

Ontario. The brochures describe the environmental problems caused by manure spills and encourage farmers to manage their manure resources wisely by implementing management practices that protect the environment and improve their farm operations.

Automotive

The Canadian Automotive Manufacturing Pollution Prevention Project is targeted toward reducing toxic substances in the industry and involves the Canadian Vehicle Manufacturers' Association, DaimlerChrysler Canada Incorporated, Ford Motor Company of Canada, Limited, General Motors of Canada Limited, the Ontario Ministry of the Environment and Environment Canada. Total emission reductions since 1992 amount to more than 345,000 tonnes of pollutants. The 12,600 tonnes reduced this year include over 1,000 tonnes of volatile organic compounds and 70 tonnes of heavy metals. The project has been enhanced for better reporting and verification.

The Automotive Parts Manufacturers' Association (APMA) pollution prevention project task force published its Third Progress Report in December 1998. The Ontario Ministry of the Environment and others are involved with the APMA task force, as is Environment Canada, which provides project direction, technical advice and funding. Six APMA companies participated in the project task force, while 11 member companies have contributed a total of 44 documented case studies. Over 1,189 tonnes of substances of concern, including chromium, aluminum, xylene, trichloroethane and chromic acid, have been reduced and/or eliminated in the 44 case studies since December 1993. Approximately 70% of APMA members, or over 180 companies, have committed to ISO 14001 (a standard that deals with environmental management systems) for implementation in 1999. An ISO 14001 Implementation Guide has been developed for automotive parts companies in Canada.

Section 2: Progress with the Private Sector (continued)

Construction

Industry Canada is coordinating a multi-departmental Industry Task Force aimed at developing a best-practice protocol for solid waste diversion in the construction, renovation and demolition (CRD) industry. The project will develop language for inclusion in any contract where the owner wants to ensure that CRD waste is handled in an environmentally sensitive manner. The costs of the project are being borne by all the federal departments involved: Public Works and Government Services Canada, Environment Canada, Department of National Defence, Defence Construction Canada (a Crown corporation) and Industry Canada.

A multi-departmental Industry Task Force is developing a best practice protocol for solid waste diversion in the construction, renovation and demolition industry.



Public Works & Government Services Canada

HELPFUL ENVIRONMENTAL BUSINESS INFORMATION

Visit the Canadian Business Environmental Performance Office (BEPO), the one-stop centre for information and services for small and medium-sized Canadian businesses to improve their environmental performance, at: <http://virtualoffice.ic.gc.ca/bepo>. This site was developed jointly by Industry Canada and Environment Canada. It receives over 10,000 visits per month and is updated regularly.

Dry Cleaning

In cooperation with the Ontario Ministry of the Environment and three fabricare associations, Environment Canada's Ontario Region provided project direction, technical advice and financial support in 1998 for five educational workshops involving the proposed federal perchloroethylene (PERC) regulations, pollution prevention and wet cleaning. Similarly, in Quebec Region, Environment Canada developed a best environmental practices training program for dry cleaners in cooperation with the *Regroupement des experts en entretien des textiles du Québec* (REETEX).

Finance

Environment Canada's Atlantic Region undertook a study to assess the effectiveness of 16 private and public lending institutions in promoting pollution prevention as a means of minimizing environmental risk. Also, the report provides a summary of best practices as identified in the survey conducted for the study. Lending institutions, small and medium-sized enterprises, libraries in Canada and the United States and government departments have requested over 200 copies. A copy of the report is available at: <http://www.atl.ec.gc.ca/reports/creditworthiness.html>

Marinas/Harbours

A national Small Craft Harbours Environment Policy and environmental management system were developed in 1997 by Fisheries and Oceans Canada to address the environmental impacts of operations at harbours where fishing is practised. During 1998-1999, the Department established and implemented Environmental Management Plans for 230 of 522 Small Craft Harbour Authorities.

In Ontario, Environment Canada, together with the City of Oshawa and the Oshawa Harbour Commission, completed Phase 1 of the Oshawa Harbour Pollution Prevention Demonstration Site Project to address the problem of contaminated sediments. This project focuses on sediment management, dredging, beneficial use of dredged materials, alternative means of dealing with current dredged materials and quantification and control of sediment and associated contaminants from point and non-point sources. An environmental audit of the Oshawa marina was undertaken and pollution prevention recommendations were made including alternative ways of handling hazardous material management, recycling, boat storage and control of runoff from property. The City of Oshawa was also provided with alternative technologies

Section 2: Progress with the Private Sector (continued)

which would reduce the introduction of plastic material and sediment into the Oshawa Harbour.



The Department of Fisheries and Oceans has been working with Small Craft Harbour Authorities to establish and implement environmental management plans.

Metal Finishing

The task force operating under a Memorandum of Understanding between several metal finishing industry associations, the Ontario Ministry of the Environment and Environment Canada released its Fifth Progress Report in September 1998. There are 22 metal finishing companies participating in this pollution prevention project, with a total of 29 documented case studies. Eighty employees from 31 organizations have completed training in pollution prevention planning. Over 234 tonnes of waste were reduced and/or eliminated in 1998-1999, for a project total of almost 2,186 tonnes since June 1993.

Mining

The Mine Effluents Program, delivered from Natural Resources Canada's CANMET Mineral Technology Branch, focuses on research and development (R&D) related to the prevention and treatment of mine, mill and metallurgical effluents. Program activities include technical R&D work at the bench and pilot scale, and international technology transfer projects. Partners include the mining industry, provincial governments,

associations, universities, other research organizations and consulting firms, and foreign governments. Results include reduced acid mine drainage due to development of effective inhibitors, improved removal of thiosalts and ammonia from mill effluents, improved water management tools and improved metal recovery from solid and liquid wastes. A related program is the Mine Environment Neutral Drainage 2000 Program, which concentrates on disseminating national and international information on acidic drainage. For more information on these programs, visit: <http://envirolab.nrcan.gc.ca> and <http://mend2000.nrcan.gc.ca>.

Printing and Graphics

The printing industry across Canada has partnered with government agencies to develop sector-wide environmental management programs based on pollution prevention principles. Activities across Canada include the Atlantic Green Printers Project, CleanPrint Ontario, B.C. Printing Project, Manitoba Green Printing Project and *Association des arts graphiques du Québec*. The programs are a result of a collaboration by regional printing associations and government agencies including Environment Canada's regional offices. The programs assist printers in reducing or eliminating wastes, at source, through voluntary actions resulting in environmental compliance, improved operations, less waste and financial savings. For more information, visit: <http://www.cleanprint.org>.

Recreational, Utility and Off-road Engines

Environment Canada has been negotiating Memoranda of Understanding (MOUs) with industry

groups who manufacture recreational and utility engines, including diesel off-road engines, to voluntarily supply cleaner engines to the Canadian market. The engines are used for products such as personal water craft, chainsaws, lawn mowers, and construction and agricultural equipment. These MOUs are being pursued to secure near-term environmental benefits and could serve as a prelude to future emissions regulations.

Tourism

The Hotel Association of Canada, in partnership with Terra Choice Environmental Services and Environment Canada, has an ongoing hotel sector eco-rating program. Under the program, hotel operations are rated on environmental management. As of March 1999, a total of 19 hotels had been rated.



Section 2: Progress with the Private Sector (continued)

Transportation

The Hamilton International Airport (HIA) was declared a Pollution Prevention Demonstration Site in 1997 through a joint partnership between Environment Canada and TradePort International, the authority managing HIA. Projects successfully implemented include the use of aqueous parts washers, battery maintenance technology, canola-based hydraulic fluids, compostable fuel absorbents, EcoLogo™ degreasers and cleaners, glycol collection recovery and reuse, a hazardous material management system and water-based paints. These pollution prevention initiatives have reduced the use of hazardous materials, reduced the volume of hazardous wastes generated, lowered operating costs and improved workplace health and safety. A video, "Pollution Prevention at Airports", was produced documenting the results of this project.

THE INDUSTRIAL RESEARCH ASSISTANCE PROGRAM,
a service of the
National Research Council,
helps small and medium-sized
Canadian firms create and adopt
innovative technologies.
These technologies,
some of which are related
to pollution prevention,
yield new products,
create high-quality jobs,
and make industry
more competitive.

Training and Awareness

In cooperation with the *Centre de Toxicologie du Québec*, the *Comité de santé environnementale du Québec* and the *Association des hôpitaux du Québec*, Environment Canada funded a training workshop on mercury management in health institutions. The workshop covered prevention measures designed to reduce the use of mercury at the source and to promote alternatives for equipment and instruments. Among other issues, it examined current practices, risks and prevention. Approximately 100 participants attended the workshop.

Environment Canada promotes green procurement within Manitoba's Institutional, Commercial and Industrial (ICI) sectors by supporting the Manitoba Green Procurement Network. In 1998-1999, four pilot projects were completed, weekly newsletters were initiated and two technical sessions were presented to 65 representatives of the ICI sector. The pilot projects targeted the health care sector, small and medium-sized enterprises and hazardous substances.

Environment Canada's EcoAction 2000, in partnership with Nova Scotia (NS) Power, NS Environment, NS Natural Resources and the Illuminating Engineering Society of North America, began a "Light Better for Less" conservation program. The program encourages the replacement of incandescent bulbs with readily available compact fluorescent, high-pressure sodium, or light emitting diode (LED) lamps. It focuses on small and medium-sized enterprises, such as tourism facilities and warehouses, with significant incandescent light usage. A one-year

POLLUTION PREVENTION RESEARCH

The Natural Sciences and Engineering Research Council (NSERC) provides financial support to Canadian university researchers for advancing Canada's knowledge and understanding of the sources of pollution and for finding new and innovative ways of preventing that pollution. NSERC is involved in the recently launched National Fuel Cell Research and Innovation Initiative, spearheaded by the Government of Canada in consultation with provincial governments and the private sector to support Canada's fuel cell industry.

Through NSERC Research Grants, a researcher at DalTech (formerly known as the Technical University of Nova Scotia) has developed a state-of-the-art solar water-heating appliance that reduces energy consumption and lowers domestic water-heating costs by as much as 65%. The system is now being sold by Thermo Dynamics Ltd.

Another beneficiary of the discoveries stemming from NSERC grants is Kemestrie Incorporated. This company is developing and commercializing biorefinery technologies based on work conducted at the University of Sherbrooke. The technology transforms organic compounds from forestry, industrial and agricultural wastes into value-added products such as biofuels and fine chemicals (used in the treatment of cancers).

pay-back period is typical in high-use areas following conversion to LED lamps.

The ENVIROCLUB™ pilot project, developed by Environment Canada's Quebec Region, in cooperation with *Développement économique Canada*, introduced a group of small and medium-sized enterprises (SMEs) in the Trois-Rivières region to pollution prevention and environmental management. The project was aimed at demonstrating to SMEs that improving their environmental performance has advantages in terms of their firm's efficiency and competitiveness. Through four workshops and on-site technical support, a pollution prevention project or a plan to implement an environmental management system was developed for each participating factory. Encouraged by its success, Environment Canada intends to make ENVIROCLUB™ available across Quebec.

More than 400 fleets, representing about 85,000 vehicles, have registered with the Natural Resources Canada FleetSmart Program, which provides private sector fleet managers with information, workshops, technical demonstrations and training programs on fuel-efficient practices for fleet vehicles.

Section 2: Progress with the Private Sector (continued)

Research and Development

The National Research Council's Institute for Chemical Process and Environmental Technology established an Environmental Management Office to develop *Design for Environment* technologies, process decision making and design aids with an emphasis on pollution prevention.

The Cansolv® system was developed by the National Research Council with technical assistance from Environment Canada's Quebec Region. Cansolv® technology can be applied in industrial processes involving the combustion of sulphur-containing fuels. The Cansolv® system contains a regenerable, high-efficiency process for selective absorption of sulphur dioxide (SO₂) from gas streams such as flue gas. Pure, water-saturated SO₂ gas is recovered by steam stripping. The recovered SO₂ can be reused in the process itself, or securely stored for future use on the site or elsewhere. The technology has been successfully applied in refineries, pulp and paper mills, smelters and acid production plants.

Statistics Canada, through an annual Survey of Environmental Protection Expenditures, collects data on the expenditures made by primary and manufacturing industries. Since 1994, the first survey year, businesses have steadily reduced their investment in end-of-pipe technologies while increasing their investment in cleaner integrated process changes. For instance, business investment spending in environmental protection totalled \$1.7 billion in 1997, an 8.7% decrease from 1996. Investment spending in end-of-pipe processes (whose sole purpose is to abate undesirable substances

resulting from production) declined by 16%. In comparison, investment in integrated process changes to prevent generation of pollutants resulting from production grew by just over 5%.

Technology Partnerships Canada is an agency of Industry Canada that makes high-risk, repayable investments in near-market product and process technology development. One of the agency's priorities is in the area of environmental technologies. During 1998-1999, \$36 million was invested in 10 projects which leveraged approximately \$81 million in private sector investment. Included in these projects were investments in the development of an improved refuelling system for hydrogen fuel cell powered vehicles and the development of ethanol derived from agricultural and forestry waste. For more information, visit: <http://tpc.ic.gc.ca>.

Natural Resources Canada continues to support hydrogen fuel cell research and development. Hydrogen fuel cell research has been ongoing for 15 years and addresses a wide range of opportunities and challenges ranging from fuel production, storage, transportation and distribution through to end use. The global fuel cell market is projected to be \$100 billion by 2020.

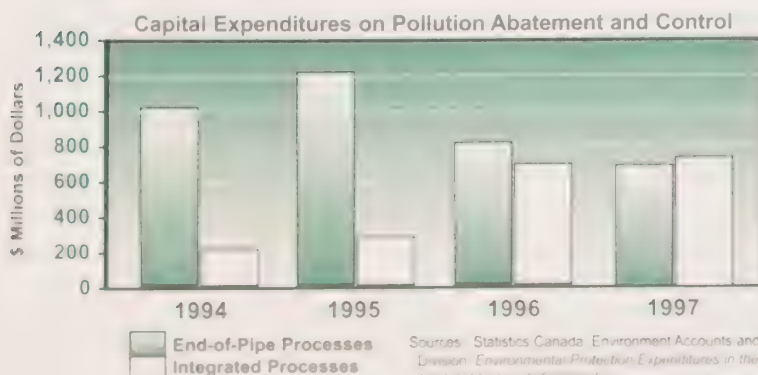
Développement économique Canada, in partnership with Environment Canada's Quebec Region, established an alternative fuel vehicle technology platform. Two projects are currently underway. The ice resurfacer electrification project has resulted in the development of a non-polluting battery-powered electric vehicle to resurface ice in arenas. Electric Vehicles Montreal 2000 is a pilot project used to

demonstrate how the use of electric vehicles can reduce carbon dioxide emissions by 3.8 tonnes per year per vehicle. This project received financial support from the Climate Change Action Fund.

The Multi-Dynamometer Simulator™ was developed by Environment Canada's Environment Technology Centre and serves as a diagnostic tool for vehicles, enabling mechanics to detect and correct engine, drive-train and brake problems that cause excessive fuel consumption and emissions of greenhouse gases and other pollutants. An operational unit was installed at the Ottawa-Carleton Transit Authority facility.

Environment Canada and Nortel Networks jointly analysed the energy, resources, materials and wastes associated with all stages of the manufacture, use and disposal of a telephone over 1997-1999. This project was designed to help identify alternative design features that use fewer and less harmful raw materials and processes, and less energy and packaging, and to promote maximum material recovery and recycling at end-of-life. Environment Canada will share key findings of this project with other Canadian manufacturers to demonstrate the environmental and economic benefits associated with using *Design for Environment* and life-cycle analysis as tools to reduce environmental impacts.

Natural Resources Canada's Program for Energy Research and Development (PERD) is aimed at developing an understanding of the nature and consequences of energy-related emissions such as carbon dioxide, nitrous oxide, sulphur dioxide and particulate matter as well as management strategies and technologies for their capture, storage and disposal. PERD will continue to support the development of alternative, more environmentally benign sources of energy including wind, photovoltaics, fuel cells, bioenergy and hydrogen. Recently, the Program has chosen to support R&D which takes a more holistic approach at reducing emissions at the design of both community energy systems and transportation systems in a more integrated and synergistic fashion.



Sources: Statistics Canada, Environment Accounts and Statistics Division, Environmental Protection Expenditures in the Business Sector, 1994-1995, Item 15F-00001.
Statistics Canada, *The Daily*, November 25, 1996.

Progress with the Canadian Public

As consumers and citizens, Canadians have the power to make informed choices that promote pollution prevention, when equipped with reliable information and tools.

ECOLOGO™ PRODUCTS AND SERVICES

TerraChoice Environmental Services Inc., on behalf of Environment Canada, manages and delivers the Environmental Choice Program (ECP), an eco-labelling program that helps individuals, corporations and governments make informed purchasing decisions to reduce their environmental impacts. Over 2,000 brand-name products are now bearing ECP's EcoLogo™, products such as appliances, cleaners, electronics and paints. For more information, visit: <http://www.environmentalchoice.com>

Citizen-Driven Activities

EcoAction 2000, Nova Scotia (NS) Lung Association, NS Department of the Environment, NS Department of Natural Resources and other interested organizations are involved in a wood stove replacement program to improve air quality. Nova Scotians were encouraged to exchange their old, inefficient wood stoves for high-efficiency stoves. Owners traded in 126 wood stoves for new models, which reduce emissions by 90% and lower heating costs. Of the 126 stoves, 101 were recycled. The 126 stove trade-ins resulted in a reduction of 7.2 kilograms of wood smoke particulate per hour. The project reached an estimated 10,000 wood-burners through its educational materials and outreach campaigns on better burning practices.

The Green Communities Association, Maritime Electric Company and other organizations became involved in the Enviro-Home Visits program in Charlottetown, Prince Edward Island. With assistance from EcoAction 2000, the project conducted 99 home audits, and 57 homes underwent low to medium retrofits involving energy efficiency improvement activities (e.g. caulking, wind proofing, insulation). Through the installation of hardware and retrofitting, savings in fuel oil due to the project were estimated at 33,500 litres per year, a 10% reduction in fuel oil use. In 90 homes, water-saving devices were installed including ultra-low-flush toilets, toilet dams and low-flow shower heads. A follow-up survey showed that 24% of the 99 homes audited had stopped using any type of hazardous household cleaners.

Public Awareness Campaigns

Under EcoAction 2000, an educational campaign was undertaken to provide

ECOACTION 2000

EcoAction 2000 is an Environment Canada program that helps Canadians take action through community funding and public engagement initiatives. It provides tools and information to help Canadians make "down to earth" choices in support of a healthy environment. For more details, visit the EcoAction 2000 website at: <http://www.ec.gc.ca/ecoaction>.

residents in the Chaleur region of New Brunswick with information on household hazardous products and environmentally responsible alternatives. This was done in conjunction with a household hazardous waste collection day.

Clean Marine Partnership members work toward preventing and reducing water, air and land pollution from recreational boating activities in Ontario through voluntary stewardship and pollution prevention initiatives. Key members include Environment Canada, Ontario Ministry of the Environment, Ontario Marina Operators' Association, Canadian Power and Sail Squadrons and other interested organizations. Accomplishments include the *Clean Marine Practices Handbook* and the *Enviro-Boater Guide*, both designed to provide tips and suggestions for environment-friendly boating. In 1998, the Eco-Rating Program, a certification and audit program, was developed for marinas, marine dealerships and yacht clubs. Achievements in 1999 included increasing the number of marine products certified by the Environmental Choice Program, and increasing participation in the Eco-Rating Program to 50 marinas.

Environment Canada provided project direction, technical advice and initial financial support in working with Ontario

Section 2: Progress with the Canadian Public (continued)

municipalities, the Association of Municipal Recycling Coordinators, the Regional Municipality of Hamilton-Wentworth and private industry on a project to eliminate mercury in households. The project objective is to educate the public about the hazards, reduction in use and proper disposal of household products containing mercury. An educational fact sheet has been developed and two workshops will be conducted. A survey is also underway to assess the present status of mercury recovery in Ontario municipalities and the awareness of mercury recovery at municipal household hazardous waste depots.

Access to Information

The Canadian Pollution Prevention Information Clearinghouse (CPPIC) is an Internet tool that provides pollution prevention information to Canadians. A variety of technical reports, fact sheets, manuals, environmental tip sheets, guides, legislation, regulations, programs, training materials and success stories are made accessible through CPPIC. Environment Canada is responsible for its development, maintenance and promotion. In 1998-1999, the number of references available on CPPIC doubled. Visit CPPIC at: <http://www.ec.gc.ca/cppic>.

The Internet-based Water Efficiency Experience Database was developed jointly by Environment Canada and the Canadian Water and Wastewater Association to facilitate and share information amongst water efficiency practitioners. Experiences described on the site come from all levels of government, institutions and the private sector. The site can be accessed at: <http://www.cwwa.ca/wed.htm>.

The second Canadian Pollution Prevention Roundtable "Demonstrating Results" was held in Winnipeg in 1998. Over 110 pollution prevention

specialists representing business, consultants, universities, governments and non-government organizations joined forces to discuss pollution prevention issues and celebrate Canadian achievements. The event included a Total Cost Assessment workshop and a tour of pollution prevention efforts at Canadian Forces Base, Winnipeg. Environment Canada provided partial funding support and assisted in the organization of the event while the Canadian Centre for Pollution Prevention, a non-profit organization, launched and coordinated the event. For more information, visit: <http://c2p2.sarnia.com>.

Find out how some companies are using pollution prevention techniques in the "Success Story" section of the Canadian Pollution Prevention Information Clearinghouse web site



ENVIRONMENTAL POLLUTION PREVENTION
1999-2000

Progress with the International Community

Canada continues to provide leadership and support abroad through international agreements, scientific cooperation and technology transfer.

AT THE SUMMIT OF THE AMERICAS

in 1994, Heads of State launched a Partnership for Pollution Prevention. As a follow-up, in August 1998 the Roundtable for the Americas for Cleaner Production was established in São Paulo, Brazil, to advance pollution prevention and cleaner production in this hemisphere. Participants included countries from South, Central and North America and the Caribbean.

International Agreements and Technology Transfer

Natural Resources Canada (lead department), in partnership with Industry Canada and Environment Canada, has established the three-year, \$56 million Technology Early Action Measures component of the Climate Change Action Fund (CCAF). This component's objectives are to advance the development and commercialization of innovative technologies that reduce greenhouse gas (GHG) emissions; to support community-based GHG emission reduction technology demonstration projects; and to transfer Canadian GHG emission reduction technology to other countries, particularly developing nations. In 1998-1999, 23 projects representing a financial investment of \$23 million were approved.

In June 1998, Canada signed the Persistent Organic Pollutants (POPs) and Heavy Metals Protocols in Denmark, with countries of the former Soviet Union, Europe and the United States, committing to reduce atmospheric emissions of 16 POPs and three heavy metals (lead, mercury and cadmium). POPs include industrial chemicals such as PCBs, pesticides such as DDT and toxaphene and contaminants such as dioxins and furans. Concentrations of these substances can be found in the Arctic, the Great Lakes and the St. Lawrence River Basin. The Protocols are the first major multinational, legally binding agreements to place controls on the hazardous air pollutants that particularly affect northern Canadians because of their long-range transport capabilities. Canada was the first country to ratify both Protocols in December 1998.

THE KYOTO PROTOCOL

In Kyoto, Japan, Canada and 160 other countries agreed to a Protocol that called for further reductions in greenhouse gas emissions over the next 15 years. Canada's reduction target is 6% below 1990 levels within the 2008 to 2012 time frame. Canada is working to develop the Buenos Aires Plan of Action, which provides a framework for finalizing the details of the Kyoto Protocol, and to facilitate ratification of the Protocol. Environment Canada, Natural Resources Canada and the Department of Foreign Affairs and International Trade are active in advancing negotiations on climate change and supporting the involvement of developing countries. Environment Canada participates in the World Climate Change Research Program and the Intergovernmental Panel on Climate Change.

In 1998, Canada was the first country to ratify new amendments to the Montreal Protocol on substances that deplete the ozone layer. The amendments make trade in banned ozone-depleting substances (ODS) tougher and accelerate the elimination of methyl bromide, an ozone-depleting pesticide. Since the signing of the Montreal Protocol in 1987, new supplies of ODS in Canada have fallen from 27.8 kilotonnes to 0.85 kilotonnes. Canada has reduced its consumption of methyl bromide by 48.5%.

Environment Canada, under bilateral agreements on environmental cooperation with developing countries and countries with economies in transition, held 14 capacity-building workshops and seminars. These events showcase Canadian environmental technology and know-how in pollution prevention, cleaner production, environmental impact assessment and climate change.

Section 2: Progress with the International Community (continued)

The Canadian Office for Technology Exchange in the Environment (COTE) is an organization established within the Environmental Affairs Branch of Industry Canada. COTE coordinates and implements a wide number of initiatives aimed at facilitating the transfer of Canadian environmental technologies abroad, some of which are related to pollution prevention. COTE administers and participates in a number of Memoranda of Understanding (MOUs) on Environmental Cooperation with countries such as Argentina, Brazil, Chile, Uruguay, Egypt, China, Poland, Cuba and Taiwan. The MOUs provide frameworks for bilateral exchanges of environmental technologies, goods and services.

The Canada-United States Strategy for the Virtual Elimination of Persistent Toxic Substances in the Great Lakes, also known as the Binational Strategy (BNS), was signed in 1997. The BNS sets reduction targets in the time frame 1997 to 2006 for specific toxic substances. Seven workgroups have been formed to identify ways to virtually eliminate these toxic substances from the Great Lakes Basin. Some of the workgroups are in the initial stages of gathering information regarding baseline levels and sources of the substances, while others have moved on to identifying cost-effective options to achieve reductions. The substances the workgroups address are mercury, hexachlorobenzene/benzo(a)pyrene, PCBs, dioxins and furans, octachlorostyrene, alkyl-lead and pesticides. For more information, visit: <http://www.epa.gov/glnpo/bns>.

The United Nations Environment Programme (UNEP) has been actively promoting the Cleaner Production Strategy since 1989 and has drafted an International Declaration. The signing of the Declaration was launched in September 1998 in Korea at UNEP's

THE CANADIAN INTERNATIONAL DEVELOPMENT AGENCY

The Canadian International Development Agency has worked diligently to advance and enable pollution prevention internationally. Shown below are some pollution prevention projects implemented in 1998-1999 in conjunction with the private sector and a number of other federal departments.

Alliance for Sustainable Development (Central America)
Economy and Environment Program for Southeast Asia (Southeast Asia)
Conservation and Sustainable Utilization of Natural Resources in the Tarim Basin (China)
Biogas II (India)
Small Projects Environmental Fund (India)
Multipurpose Waste Recycling Project (India)
Boiler Emission Upgrade (India)
Water and Energy Commission and Secretariat Institutional Development Projects (Nepal)
Training and Visits (Malaysia)

fifth High Level Seminar on Cleaner Production. The Declaration is voluntary and open to leaders from public, private and non-governmental organizations worldwide. The ultimate goal of the Declaration is to spread awareness of the Cleaner Production Strategy and encourage wide-scale adoption of the Strategy to achieve sustainable production and consumption. Environment Canada provided input on the wording of the Declaration to ensure that it complemented Canadian policy on pollution prevention as the preferred approach to environmental protection. More information on the status of the Declaration can be obtained by visiting the UNEP website at <http://www.unepie.org>.

North, Central and South America

ARPEL Environmental Services, a non-profit organization based in Alberta, is working with its member companies to develop and implement environmental protection technologies in the Latin American petroleum sector through information exchange, training and assistance. This phase consists of seven major projects: Contingency Planning, Atmospheric Emissions, Environmental Audits, Energy Efficiency, Environmental Costs, Environmental Training and Environmental Guidelines. The Canadian International Development Agency provided financial support for

these projects, which resulted in a series of regional workshops in Latin America.

During 1998-1999 National Defence began the first year of a three-year joint project with the U.S. Department of Defense and the private sector. The Canada-United States Hard Chrome Replacement Project is aimed at replacing the chrome electroplating process with high-velocity oxy-fuel and physical vapour deposition thermal coating technologies. The project will develop a more environmentally responsible replacement technology to the chrome electroplating process currently used to refinish aircraft landing gear components.



Section 2: Progress with the International Community (continued)



The Program of Action on Sustainable Cities is helping address the impact of urban activities on the environment.

Asia and Africa

The China-Canada Cooperation Project in Cleaner Production, a five-year project, began in early 1997. The Canadian International Development Agency provides technical assistance, services, administration, training, monitoring, and impact assessment on cleaner production activities in Canada. For instance, the Fuyang General Chemical Manufacturer Plant has achieved substantial savings in manufacturing costs and reductions in emitted pollutants by implementing cleaner production solutions as suggested by Canadian experts. By the beginning of 1999, their raw material consumption had been reduced from 1,500 kilograms/tonne of ammonia produced in 1996 to 1,300 kilograms/tonne; oil consumption had been reduced from 4.11 kilograms/tonne to 2.17 kilograms/tonne. For more information, visit: <http://www.chinacp.com>.

Sustainable development is fundamentally linked to the sustainability of cities. In the Asia-Pacific region, where the proportion of city dwellers is expected to increase by 20% between now and 2015, addressing the environmental impact of urban activities is a major objective for the maintenance of overall quality of life and well-being. Environment Canada together with the Asia-Pacific Economic Cooperation forum, Industry Canada, the Canadian International Development Agency, the National Round Table on the Environment and the Economy and others are implementing a Program of Action on Sustainable Cities, with special emphasis on pollution prevention and control.

Section 2: Progress with the International Community (continued)

The Asia-Pacific region will promote cleaner production in industrial sectors and has agreed to encourage the wider dissemination of information electronically through the Asia-Pacific Economic Cooperation (APEC) Virtual Centre for Environmental Technology Exchange and the APEC Center for Technology Exchange and Training for Small and Medium Enterprises. Environment Canada supported and contributed to the APEC Virtual Centre.

The Asia-Pacific Economic Cooperation (APEC) Industry, Science and Technology Working Group is focused on industrial voluntary action initiatives and market driven business opportunities associated with the environment. As a Canadian participant in the working group, the National Research Council is providing technical leadership and project management in the field of cleaner production processes to establish collaborative research and demonstration projects. The Canadian International Development Agency has partly funded the participation of some APEC members.

Over the 1998-1999 period, Asia-Pacific energy ministers adopted a work program to examine issues relating to investment in environmentally sound energy infrastructure, which was championed by Canada. Energy ministers also launched an initiative to promote information sharing on energy efficiency test standards for energy-using equipment with a view to standardizing measures where practical.

Under a Canadian International Development Agency funded project initiated in 1998-1999, Environment Canada continues to work with the Pakistan Environmental Protection Agency in building capacity to deal with oil and chemical spills (proper storage, handling and spill response practices).

air quality improvement, hazardous products handling and environmental technology verification. A series of training sessions and workshops is being jointly organized and implemented.

The Front commun québécois pour une gestion écologique des déchets (FCQGED)

Environmental Training and Pilot Project is a project led by the Canadian International Development Agency. Its intent is to increase the awareness of textile sector stakeholders of new pollution prevention measures and to implement pilot projects using these measures at a number of textile companies in Tunisia. The pilot projects have demonstrated that pollution control systems were an economic advantage for the firms, as initial investments are much lower than the cost of building treatment plants. Over 700 copies of the environmental audit of the textiles sector have been distributed, and there continue to be a large number of requests for it both in Tunisia and from other Maghrebian environmental associations.



CIDA Photo - Frank Koller



PROGRESS IN POLLUTION PREVENTION
1998 - 1999

Moving Forward

Active engagement of all Canadians and establishment of the link between environmental and economic performance are crucial to the successful integration of the pollution prevention approach.

Sustainable development is not a fixed state and requires ongoing work. Efforts in the five targeted sectors of the federal Pollution Prevention Strategy are yielding signs of success, yet work must go on. A step-by-step approach based on continuous improvement is required to make measurable progress toward sustainable development. With a heightened focus on demonstrating environmental results, new and continuing initiatives will promote the use of processes, practices, materials, products and energy that avoid or minimize the creation of pollutants and waste.

The results of this report, *Progress in Pollution Prevention 1998-1999*, confirm the Government of Canada's commitment "to expand the application of the federal Pollution Prevention Strategy across federal legislation, programs and policies" as stated in *Securing Our Future Together: Preparing Canada for the 21st Century* (Red Book II). Also, this report demonstrates that the techniques and processes used for pollution prevention are evolving to address national and global challenges.

The renewed *Canadian Environmental Protection Act* will provide the government with new powers to protect the environment and human health. The pollution prevention thrust of the renewed Act will help Canada

contribute to sustainable development and enable Canadian industry to be more competitive internationally.

As the leading federal promoter of pollution prevention, Environment Canada will proceed to work with other federal departments in the development and implementation of effective environmental protection strategies, programs and projects. To foster this relationship and recognize achievements, all federal departments are encouraged to record their pollution prevention efforts during the 1999-2000 fiscal year for inclusion in the next annual progress report.

The Government of Canada will continue to strive for better understanding of the environmental and health threats posed by toxic substances and substances of concern. Better understanding will lead to prevention or reduction of threats to the environment

Section 3: Moving Forward (continued)

and health of Canadians. Federal departments will go on to address the present gaps in environmental baseline data and performance measures through improvements in tracking and data management capability. Working on an individual basis, federal departments are beginning to institutionalize performance indicators and measures pertinent to their operations.

Work will move forward with the provinces and territories to set Canada-wide standards for priority substances, including mercury, dioxins and furans, ozone, particulates and benzene.

Further partnerships will be pursued with industries and communities to reduce emissions of key pollutants. To promote pollution prevention in the marketplace, consumers will have more and better pollution prevention information for use when buying goods and services. The development and commercialization of innovative pollution prevention products, processes and technologies for application at home and abroad will remain a priority.

The pollution prevention successes achieved in 1998-1999 leave the Government of Canada well positioned to deliver a cleaner and healthier environment in the new millennium.

The Pollution Prevention Coordinating Committee welcomes all Canadians to become active in furthering the pollution prevention approach. Governments, municipalities, First Nations, business and academic communities, environmental groups and individual Canadians all play a vital role. By continuing to work together toward the goal of preventing pollution at the source, Canadians will protect and enhance the natural beauty and health of the environment and secure a healthy economy for generations to come.

*On the Internet, view
this report at:
www.ec.gc.ca/p2progress*

Annual meeting of the Pollution Prevention Coordinating Committee in Vancouver, May 1999



*To view
Pollution Prevention—
A Federal Strategy for Action, visit:
www.ec.gc.ca/pollution/strategy*

Appendix I

Pollution Prevention Coordinating Committee Membership List

ENVIRONMENT CANADA

National Office of Pollution Prevention

James Riordan (Chairperson)

John de Gonzague (Substitute
Chairperson)

Ghislaine Dunberry (Coordinator)

Environmental Technology

Advancement Directorate

Patricia Mitchell / Adrian Steenkamer

Regions

Rodger Albright

Atlantic Region

Thanh Thao Pham

Quebec Region

Brad Cumming / Ron Nobes

Ontario Region

David Noseworthy

Prairie & Northern Region

Snehal Lakhani / Andrew Green

Pacific & Yukon Region

Interdepartmental Network on Sustainable Development Strategies (INSDS)

Craig Ferguson / Stefania Trombetti

NATURAL RESOURCES CANADA

Richard Arseneault / Chris Callaghan

Federal Committee on Environmental Management Systems

Richard Arseneault

INDUSTRY CANADA

Environmental Affairs Branch

Giorgio Grappolini

NATIONAL DEFENCE

Directorate Environmental Protection

Holmer Berthiaume

CANADIAN INTERNATIONAL DEVELOPMENT AGENCY

Environment and Natural Resources Division, Policy Branch

Rasheda Nawaz

FISHERIES AND OCEANS CANADA

Real Property Management Directorate

Glen Packman / Susan Martin

PUBLIC WORKS AND GOVERN- MENT SERVICES CANADA

Environmental Services

Monique Thériault

TRANSPORT CANADA

Environmental Affairs

Alec Simpson / Saleem Sattar

DEPARTMENT OF FOREIGN AFFAIRS AND INTERNATIONAL TRADE

Environmental Services

Jaye Shuttleworth

AGRICULTURE AND AGRI-FOOD CANADA

Corporate Services Branch, Asset Management and Capital Planning Directorate, Engineering Services

Pierre Laplante

Members can be reached through the
Government of Canada Employees
Directory at:

<http://canada.gc.ca/search/direct500>

Appendix II

Federal Department and Agency Contributors

Environment Canada
Agriculture and Agri-Food Canada
Atlantic Canada Opportunities Agency
Canadian Heritage
Canadian International Development Agency
Citizenship and Immigration Canada
Développement économique Canada
Fisheries and Oceans Canada
Foreign Affairs and International Trade
Health Canada
Human Resources Development Canada
Indian and Northern Affairs Canada
Industry Canada
Justice Canada
National Defence
National Research Council
Natural Resources Canada
Natural Sciences and Engineering Research Council
Public Works and Government Services Canada
Statistics Canada
Transport Canada

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Any reference in this report to any specific commercial product, process or service by tradename, trademark, manufacturer or otherwise does not constitute its endorsement by the Government of Canada or the Canadian Centre for Pollution Prevention Inc.

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PROGRESS

IN POLLUTION PREVENTION

THE ANNUAL REPORT
1997-2000



Environment Canada
Environnement Canada

Canada

Progress in Pollution Prevention 1999-2000: Annual Report of the Pollution Prevention Coordinating Committee

Copies of this document are available from:

Inquiry Centre
Environment Canada
Ottawa, Ontario K1A 0H3
Telephone: 1-800-668-6767
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E-mail: enviroinfo@ec.gc.ca

This document is also available on Environment Canada's Green Lane at
<http://www.ec.gc.ca/p2progress>

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PROGRESS

IN POLLUTION PREVENTION



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Message From the Minister of the Environment

It is my pleasure to present the fifth annual report of the Government of Canada's Pollution Prevention Coordinating Committee — *Progress in Pollution Prevention 1999-2000*.

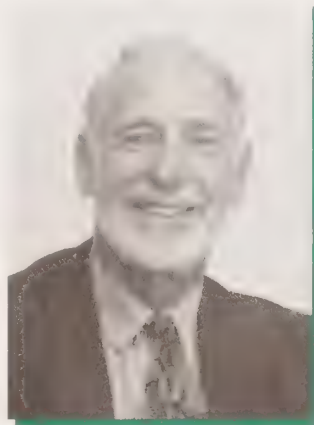
Pollution prevention is a priority for all federal government departments and agencies. This report demonstrates the continuing cooperation among departments to achieve shared objectives and report on the Government's success in promoting pollution prevention within its own operations. The success stories profiled in the report also attest to the commitment that other levels of government, the private sector and the Canadian public bring to pollution prevention strategies.

Progress in Pollution Prevention 1999-2000 reports on projects that either began, or reached a major milestone, in the period April 1999 to March 2000. The value of this work has been recognized by the Treasury Board Secretariat, which profiled *Progress in Pollution Prevention* as an excellent example of results-based management in its 2000 report to Parliament, *Managing for Results 2000*.

Canada's research and development investments have resulted in innovative and effective ways of preventing pollution at home and abroad. The National Research Council, Natural Resources Canada, Industry Canada and Environment Canada have provided technical and financial support to commercialize and market Canadian pollution prevention technologies. This domestic agenda is complemented by bilateral projects with other countries funded by the Canadian International Development Agency and other sources.

The collective impact of these actions is considerable: cleaner air and water, improved health, and sustainable ecosystems and habitats - in short, a higher quality of life for all citizens of the world.

I would like to thank everyone who contributed to this report. It takes the combined effort of many concerned Canadians to make pollution prevention an environmental, economic and social reality.



David Anderson

Honourable David Anderson, P.C. MP
Minister of the Environment

POLLUTION PREVENTION is everyone's concern. We all benefit when businesses, communities and individuals act to promote cleaner air and water for present and future generations.

Executive Summary

Canada continues to be strongly committed to pollution prevention as the most effective means of protecting human health and the environment.

Progress in Pollution Prevention 1999-2000 showcases the federal government's achievements in incorporating pollution prevention into its own activities and those of its partners. This is the fifth annual report prepared by the federal Pollution Prevention Coordinating Committee. The report focuses on the progress made against the goals stated in the Federal Pollution Prevention Strategy and Action Plan during the year ending March 31, 2000, and demonstrates the federal government's leadership and commitment to pollution prevention. This year, all federal departments were encouraged to record their prevention efforts, and actions were taken to move the document toward more results-based reporting.

Pollution Prevention—A Federal Strategy for Action sets priorities for action based on working with five target sectors: federal departments and agencies, other orders of government, the private sector, individual Canadians and the international community. By directing efforts toward preventing pollution instead of managing it after it has been created, the federal strategy works toward the ultimate goal of sustainable development.

This Year's Accomplishments

The Government of Canada is advancing pollution prevention by strengthening legislation and regulations, integrating the pollution prevention approach into current programs, designing guidelines and codes of practice for industrial operations, working in partnership with the private sector, other orders of government and communities, supporting non-regulatory initiatives, and participating in developing and implementing international agreements.

Progress within the Federal Government

On March 31, 2000, the federal government enacted a renewed *Canadian Environmental Protection Act, 1999* (CEPA 1999) with pollution prevention as its cornerstone. The Act requires that more substances of concern be assessed faster, establishes strict timelines for controlling toxic substances, and requires the virtual elimination of releases of the most dangerous toxic substances—those that are

persistent and bioaccumulative. The Act gives the Minister of the Environment the authority to require pollution prevention plans for substances declared toxic under CEPA. Regulations passed under CEPA 1999 in 1999-2000 include the Sulphur in Gasoline Regulations and the Federal Halocarbon Regulations.

Federal initiatives, such as the Toxic Substances Management Policy, Greening of Government Operations and the National Pollutant Release Inventory, remain the foundation for the more detailed policy, operational and measurement frameworks needed for successful delivery of preventive environmental care. In greening operations, Agriculture and Agri-Food Canada, Public Works and Government Services Canada, Health Canada and National Defence took measures to reduce water use and realize significant savings. Vehicle fleet management initiatives and investments in alternative fuels by various departments have resulted in improved vehicle performance and reductions in greenhouse gas emissions.

Departments have used pollution prevention to meet or exceed the requirements of environmental regulations and policies. National Defence was awarded the 1999 United States Environmental Protection Agency's Stratospheric Ozone Protection Award for the department's progress in the recovery, reclamation and reuse of halons. Environment Canada's and Transport Canada's use of electric vehicles demonstrated leadership in the adoption of cleaner technologies.

Federal departments are committed to integrating pollution prevention into environmental awareness training of all staff. Some departments have employed social marketing techniques to reduce the barriers to behavioural change. For instance, Transport Canada encouraged sustainable transportation by offering incentives to staff.

Progress with Other Governments

Through the Canada-Wide Accord on Environmental Harmonization, overseen by the Canadian Council of Ministers of the Environment, federal, provincial and territorial governments and agencies work collaboratively

Executive Summary (continued)

to achieve national standards for the prevention and control of toxic substances. The development of Canada-wide standards for six substances (mercury, dioxins and furans, ozone, particulates, petroleum hydrocarbons and benzene) is on track for completion in 2001.

Parks Canada and Environment Canada provided technical expertise in support of more sustainable planning initiatives to local governments including the Town of Banff, City of Surrey and Regional Municipality of Halifax. In addition, Environment Canada continued to lead work on ecosystem initiatives including British Columbia's Georgia Basin and the Great Lakes Basin.

Recent joint efforts of the federal and provincial governments to address climate change will create future opportunities to prevent pollution through initiatives such as retrofitting of buildings and the promotion of alternative transportation methods.

Progress with the Private Sector

Investment in research and development has led to new and innovative ways of preventing pollution at home and abroad. Natural Resources Canada, Industry Canada, Economic Development Canada and Environment Canada provided technical and financial support to commercialize and market Canadian pollution prevention technologies through programs such as the Canadian Lightweight Materials Research Initiative, the Climate Change Action Fund, Technology Partnerships Canada, and the Strategic Regional Initiative. Support was also given through research institutes such as Environment Canada's Environmental Technology Centre, as well as through bilateral projects with other countries funded by the Canadian International Development Agency and other donors. Many of these technologies were promoted through Canadian Environmental Solutions, an Internet-based information tool.

Through partnerships, federal government departments prevented pollution by facilitating private sector development and adoption of best management practices, clean processes

and green technologies. The voluntary participation of industry and government departments in the Accelerated Reduction and Elimination of Toxics (ARET) program has resulted in further progress toward the stated ARET goals, and participants have committed to further reductions in releases to the environment. Other private sector initiatives profiled in this report include waste reduction requirements for construction, renovation and demolition activities led by Public Works and Government Services Canada; prevention and treatment of mine, mill and metallurgical effluents led by Natural Resources Canada; and best environmental practices for golf courses and aquaculture operations led by Environment Canada.

The unique needs of small and medium-sized enterprises were recognized by Economic Development Canada, Natural Resources Canada and Environment Canada through programs that address eco-efficiency, environmental management and technological support.

Progress with the Canadian Public

Vital expertise and information were exchanged with the expansion of pollution prevention networks and Internet products such as the Canadian Pollution Prevention Roundtable and the Canadian Pollution Prevention Information Clearinghouse.

Local community action to address environmental issues received continued support through projects that promoted energy efficiency, water conservation, healthier living and environmentally responsible products and services. Projects were aimed at a variety of public audiences including households, automobile owners, consumers and children.

Progress with the International Community

The federal government represented Canada's environmental interests abroad by participating in the development and implementation of international agreements and technology transfer programs, and through scientific cooperation. The 1999-2000 year marked the signing of

the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone as well as the 25th anniversary of the signing of the Great Lakes Water Quality Agreement.

The Canadian International Development Agency promoted pollution prevention abroad through the implementation of environmental technologies in sectors such as petroleum, textiles and manufacturing. The Government of Canada continued to be an active participant in initiatives aimed at the Asia-Pacific and South American regions including the China-Canada Cooperation Project in Cleaner Production and the Community Pedal Power Project. The Government of Canada was also involved in programs targeting small and medium-sized enterprises, as well as various technology exchange programs aimed at increasing the skill base of environmental protection practitioners.

Moving Forward

Progress in Pollution Prevention 1999-2000 demonstrates that the practice of pollution prevention is expanding across the targeted sectors. This report shows that the techniques and processes used for pollution prevention are evolving to address national and global challenges.

The pollution prevention successes achieved in 1999-2000 position the Government of Canada to support a stronger and healthier environment in the new millennium.

Strengthening the Pollution Prevention Framework

The legislation and policies that support pollution prevention are part of the national commitment to protect human health and the environment.

POLLUTION PREVENTION PRACTICES AND TECHNIQUES

Conserving natural resources and using them efficiently

Substituting "clean" and "green" materials and feedstock

Thinking "green" for purchasing, product design and reformulation, process changes, equipment modifications and production

Reducing inputs and waste; on-site reuse and recycling

Training everyone in pollution prevention techniques

Introducing cleaner operating practices

The federal government defines pollution prevention as: *The use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste, and reduce overall risk to human health or the environment.* The goal of pollution prevention is the elimination of the causes of pollution rather than the treatment of generated waste. Pollution prevention involves continuous improvement through design, technical, operational and behavioural changes. It encourages transformations that are likely to lead to lower production costs, increased efficiencies and more effective protection of the environment.

Pollution prevention practices and techniques focus on such areas as substances of concern; efficient use and conservation of natural resources; reuse and recycling on-site; materials and feedstock substitution; operating efficiencies; training; procurement techniques; product design; process changes; product reformulation; equipment modifications; and clean production.

Pollution prevention:

- minimizes or avoids the creation of pollutants;
- prevents the transfer of pollutants from one medium to another;
- accelerates the reduction and/or elimination of pollutants;
- minimizes health risks;
- promotes the development of source reduction technologies;
- uses energy, materials and resources more efficiently;
- reduces the need for costly enforcement;
- limits future liability with greater certainty;
- recognizes that waste is a cost that can be reduced;
- avoids costly clean-up in the future; and
- promotes a more competitive economy.

Federal Pollution Prevention Strategy
Pollution Prevention—A Federal Strategy for Action is the Government of Canada's policy

THE ENVIRONMENTAL PROTECTION HIERARCHY



framework for advancing pollution prevention as the priority approach to environmental protection. Approved by Cabinet in June 1995, the Strategy elaborates on Government policy and sets priorities for action based on five goals involving partnerships with federal departments and agencies, other orders of government, the private sector, individual Canadians and the international community.

The goals of the Federal Pollution Prevention Strategy include the following:

- Within the Federal Government: institutionalize pollution prevention across all federal government activities;
- With Other Governments: foster a national pollution prevention effort;
- With the Private Sector: achieve a climate in which pollution prevention becomes a major consideration in industrial activities;
- With All Canadians: provide access to the information and tools necessary to implement pollution prevention practices;
- With the International Community: participate in international pollution prevention initiatives.

Section 1: Strengthening the Pollution Prevention Framework (continued)

Federal Pollution Prevention Coordinating Committee

The federal Pollution Prevention Coordinating Committee (P2C2) was established in 1992. It collectively promotes the implementation of *Pollution Prevention—A Federal Strategy for Action* (1995) by encouraging the practice of pollution prevention throughout the federal government and with the federal government's clients. Environment Canada chairs the committee. The current committee membership, listed below, includes representatives from 11 federal departments.

- Environment Canada
- Agriculture and Agri-Food Canada
- Canadian International Development Agency
- Fisheries and Oceans Canada
- Foreign Affairs and International Trade
- Health Canada
- Industry Canada
- National Defence
- Natural Resources Canada
- Public Works and Government Services Canada
- Transport Canada

Progress in Pollution Prevention, the annual report of the P2C2, was first published in 1996. This annual report informs Canadians and government officials of national progress in pollution prevention, highlighting pollution prevention achievements and successes across the country. By relating progress to the five target sectors of the Federal Pollution Prevention Strategy and Action Plan, this progress report provides a framework for monitoring performance and profiling federal environmental successes.

The first three annual reports of the P2C2 were published by Environment Canada. This is the second report to be published as a Government of Canada document in recognition of pollution prevention's continued promotion across federal government departments. Because of its demonstration of intergovernmental collaboration and its example as a framework for monitoring performance and reporting on results achieved, *Progress in Pollution Prevention* has also been featured in the Treasury Board

POLLUTION PREVENTION POLICIES AND REGULATIONS

<i>Canadian Environmental Protection Act</i>	1988
Canadian Council of Ministers of the Environment (CCME)	1993
National Commitment to Pollution Prevention	
Toxic Substances Management Policy	1995
<i>Auditor General's Act</i> pertaining to Sustainable Development Strategies	1995
Greening of Government Operations Policy	1995
Pollution Prevention—A Federal Strategy for Action	1995
A Strategy to Fulfill the CCME Commitment to Pollution Prevention	1996
CCME Policy for the Management of Toxic Substances	1996
<i>Canadian Environmental Protection Act, 1999</i>	2000

Secretariat's report *Managing for Results 2000* as an excellent example of results-based reporting. Altogether, there are 16 federal department and agency contributors to this report.

Putting the Strategy into Practice

Within Canada, jurisdiction for the environment is shared by the municipalities, provinces, territories and the federal government. The Canadian Council of Ministers of the Environment (CCME) is Canada's premier forum for intergovernmental discussion and action on environmental issues. The CCME comprises environment ministers from the federal, provincial and territorial governments. Its mandate is to improve environmental protection and promote sustainable development in Canada.

In 1993, the CCME contributed to the evolution of pollution prevention in Canada by releasing the *National Commitment to Pollution Prevention*. In May 1996, the CCME again addressed pollution prevention by releasing *A Strategy to Fulfill the CCME Commitment to Pollution Prevention*. This strategy sets out a shared vision, mission and goal statement as well as guiding principles for the implementation of pollution prevention by all provinces, territories and the federal government. As part of the strategy, CCME jurisdictions adopted a common definition of pollution prevention: "The use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and wastes, at the source." As stated in the CCME strategy, pollution prevention is a shared responsibility

among governments, individuals and industrial, commercial, institutional and community sectors.

To show its support for pollution prevention, the CCME presents pollution prevention awards annually and maintains a Pollution Prevention Network. The Network serves as a forum for information exchange among its members on an ad hoc basis and provides technical support to the CCME Pollution Prevention Awards Program.

The Government of Canada, with stakeholders in the private sector, environmental non-government organizations, communities, labour and academia, is putting pollution prevention into practice through a mix of regulatory and non-regulatory instruments. This includes modernizing legislation and regulations, managing national programs, developing guidelines and codes of practice for industrial operations, establishing Canada-wide standards for specific substances, supporting voluntary initiatives, ensuring accessibility of tools and information and implementing international agreements.

Progress within the Federal Government

Federal government departments are making pollution prevention a permanent part of their operations through the development and implementation of strategies, programs and projects.

ENVIRONMENT CANADA administers the pollution prevention provisions of the *Fisheries Act* (sections 34-42), which prohibits the deposit of deleterious substances into water frequented by fish. Under the Act, regulations have been developed for certain industries to limit the deposition of deleterious substances. More recent regulatory initiatives are incorporating site-specific environmental effects monitoring programs to verify that the discharges are not harming the receiving environment. Fish habitat protection measures are addressed by Fisheries and Oceans Canada.

Legislation and Regulations

On March 31, 2000, a renewed and stronger *Canadian Environmental Protection Act, 1999* (CEPA 1999) was proclaimed with pollution prevention as the cornerstone. The renewed Act gives the Minister of the Environment the authority to require pollution prevention planning for substances declared toxic under CEPA. Other provisions include:

- implementing a "fast track" approach to evaluating and controlling toxic substances;
- ensuring the most harmful substances are phased out, or not released into the environment in any measurable quantity;
- improving enforcement of regulations;
- improving "whistle-blower" protection to encourage more Canadians to report CEPA violations; and
- allowing for more effective cooperation and partnership with other governments and Aboriginal peoples.

Since environmental challenges, expectations, and legal and scientific knowledge are constantly evolving, the Act will be reviewed by a parliamentary committee every five years. For more information, visit: www.ec.gc.ca/CEPARRegistry.

In June 1999, the Government approved new regulations under the *Canadian Environmental Protection Act, 1999* that set a limit of 30 parts per million (ppm) of sulphur in gasoline by January 1, 2005. This limit represents a 90% reduction from the current gasoline sulphur content. These new regulations will be phased in to help the refining industry adjust to the new requirements while achieving the health and environmental benefits of lower sulphur gasoline. As part of the first phase, sulphur levels in gasoline produced or imported into Canada must meet an average of 150 ppm in 2002.

Issued in July 1999, the new Federal Halocarbon Regulations are aimed at minimizing the release

In June 1999, the federal Government approved regulations to reduce the sulphur content in gasoline by 90% by 2005.



Photo: R.J. Durand

of ozone-depleting substances from refrigeration, air conditioning, solvent cleaning and fire protection systems in federal facilities. Several departments including Environment Canada and National Defence have held workshops to educate personnel on the requirements of these regulations.

Toxic Substances/Clean Air

Strengthened under the new *Canadian Environmental Protection Act* (CEPA), the National Pollutant Release Inventory (NPRI) provides Canadians with access to pollutant release information for facilities located in their communities. Starting in 1999, companies are required to report to the NPRI on an additional 73 pollutants, including 20 toxic substances. The addition of these 20 toxic substances increased the total number of substances on the NPRI that have been declared toxic under CEPA from 16 to 36.

Environment Canada prepared a report on the use of heavy fuel oil by federal departments in Atlantic Canada. Combustion of heavy fuel oil produces greater emissions of particulate matter, sulphur dioxide, nitrogen oxides and carbon dioxide than alternatives such as light oil, natural gas and district heating. This report is the first step in promoting options for replacing heavy fuel oil with alternatives.

Section 2: Progress within the Federal Government (continued)

TOXIC SUBSTANCES MANAGEMENT

The Toxic Substances Management Policy outlines a risk management process based on two key objectives: virtual elimination from the environment of toxic substances that are persistent, bioaccumulative, and primarily the result of human activity (Track 1), and life-cycle management of other toxic substances and substances of concern to prevent or minimize their release into the environment (Track 2). Environment Canada applies a pollution prevention approach and the precautionary principle to the management of both Track 1 and Track 2 substances. Environment Canada is also implementing action plans to virtually eliminate the most dangerous toxic substances (e.g. dioxins, furans, hexachlorobenzene, PCBs, DDT). Domestic action has already been taken to limit or ban the production, use, importation or release of these substances.

Environment Canada, Health Canada, other federal departments and provincial governments share responsibility for managing substances declared toxic under the *Canadian Environmental Protection Act* (CEPA) and, as such, are key partners in the development of prevention and control options for them. The Strategic Options Process was used to develop management options for the 25 substances declared toxic under CEPA (Priority Substance List 1). Fourteen multi-stakeholder "issues tables," seven sector-based and seven substance-based, were established and chaired by Environment Canada. Each issue table developed recommendations for the most feasible way to address the problems associated with specific toxic substances. Management measures are being developed following recommendations from 10 issues tables, and work is proceeding to complete the tasks of the remaining four tables.

TARGETED SECTORS

Dry Cleaning** (tetrachloroethylene)

Solvent Degreasing** (tetrachloroethylene; trichloroethylene)

Wood Preservation* (polycyclic aromatic hydrocarbons; hexavalent chromium compounds; creosote-contaminated sites; dioxins and furans)

Steel Manufacturing** (inorganic arsenic compounds; inorganic cadmium compounds, oxidic, sulphidic and soluble inorganic nickel compounds; benzene, inorganic fluorides; polycyclic aromatic hydrocarbons; polychlorinated dibenzodioxins; polychlorinated dibenzofurans; dichloromethane; tetrachloroethylene; 1,1,1-trichloroethane; polychlorinated biphenyls; hexavalent chromium compounds; lead; mercury)

Base Metal Smelting** (inorganic arsenic compounds, inorganic cadmium compounds, oxidic, sulphidic and soluble inorganic nickel compounds, polychlorinated dibenzodioxins, polychlorinated dibenzofurans, lead, mercury)

Metal Finishing** (hexavalent chromium compounds)

Coal-Fired Power Generation** (inorganic arsenic compounds; inorganic cadmium compounds, oxidic, sulphidic and soluble inorganic nickel compounds; hexavalent chromium compounds, mercury)

TARGETED SUBSTANCES

Benidine 3,3'-Dichlorobenzidine**

Refractory Ceramic Fibres**

Short Chain Chlorinated Paraffins

Dichloroethane

Dichloromethane**

Ethylhexyl Phthalate

Hexachlorobenzene

Sustainable Development and Environmental Management Systems

The *Auditor General Act* requires each federal department to table a sustainable development strategy in Parliament that outlines its goals for integrating sustainable development into its policies, programs and operations. Environment Canada has coordinated and led federal efforts through the Interdepartmental Network on Sustainable Development Strategies. Consistent with the approach of continual improvement, federal departments are required to update their strategies every three years, with the first update due by December 2000. Federal departments concentrated their efforts over 1999-2000 on updating their existing strategies based on first-round implementation, including a greater emphasis on interdepartmental cooperation on shared issues.

An environmental management system (EMS) provides a systematic framework to help an organization manage its environmental obligations and document, evaluate and communicate its environmental performance. Co-chaired by Environment Canada and Natural Resources Canada, the Federal Committee on Environmental Management Systems promotes the effective implementation of departmental environmental management systems. At the departmental level, Health Canada designed an EMS specific to hospitals and provided training support to staff. Transport Canada piloted an ISO 14001 EMS at an aircraft hangar facility and managed to mitigate environmental impacts in a number of areas, including reducing the hazardous waste generated in five varsol parts washers by replacing the varsol with an aqua-based solution. Under its EMS, the Department of Foreign Affairs and International Trade adopted environmental targets and performance measures for 11 priority areas.

Section 2: Progress within the Federal Government (continued)

TOXIC SUBSTANCES

RESEARCH INITIATIVE (TSRI)

The TSRI was established jointly by Environment Canada and Health Canada to support research on toxic substances, in order to provide a sound scientific basis for policy decisions, management of pollutants and protection of the environment and human health. For more information, visit: www.hc-sc.gc.ca/ehp/ehd/tsri.

Waste Reduction

To minimize the amount of waste produced, Environment Canada's Quebec Region used electronic slides for presentations and an electronic briefcase. For example, in 1999-2000, the St. Lawrence Vision 2000 Coordination Office used only 60 conventional slides for presentations instead of the 270 that would normally have been used. To reduce the number of paper documents at meetings of Environment Canada's Management Board and the different departmental roundtables, an electronic briefcase was used. The use of electronic briefcases has saved nearly 7,000 pieces of paper a year.

INTERDEPARTMENTAL ARRANGEMENTS ON POLLUTION PREVENTION AND ENVIRONMENTAL MANAGEMENT

Federal departments and agencies often share interests, mandates or responsibilities when it comes to sustainable development. Participation in interdepartmental groups is essential for developing common tools, coordinating activities and sharing information.

Interdepartmental mechanisms in place to promote coordination include:

- Deputy Ministers' Sustainable Development Coordinating Committee;
- Interdepartmental Network on Sustainable Development Strategies;
- Federal Committee on Environmental Management Systems; and
- Pollution Prevention Coordinating Committee.

Canadian Forces Base Petawawa reduced the amount of solid waste sent to landfill by reusing the entire output of sludge from the Town of Petawawa sewage treatment plant for revegetation and erosion control projects. This activity resulted in the reuse of approximately 1.8 million gallons per day of sewage flow from the plant, of which 70% is generated by the base and private married quarters.

In an effort to reduce its hazardous waste, Canadian Forces Base Petawawa purchased and installed an aqueous paint gun cleaner. The aqueous cleaner has eliminated the use

of organic solvent to remove paints. Examples of other pollution prevention activities on the base include the reuse of vehicle antifreeze and the reuse of chipped waste wood for ground maintenance and dry landfill cover.

On a similar note, all demolition projects conducted at Canadian Forces Base Trenton were assessed by staff for potential recycling and reuse. Improved waste management practices resulted in a 5%-20% diversion rate of material from landfill.

Energy Efficiency/Water Conservation

The Federal Buildings Initiative (FBI), led by Natural Resources Canada, is designed to facilitate comprehensive energy and water efficiency upgrades and building retrofits for federally owned facilities. The FBI has helped reduce greenhouse gas emissions by approximately 7% in the 1990-1998 period. FBI projects or related energy conservation measures have been instituted in 171 Public Works and Government Services Canada (PWGSC) facilities, representing 60% of the total inventory in terms of floor area. Cumulatively, energy use within Crown-owned PWGSC facilities has been reduced by approximately 20% compared to 1990 reference levels. Water conservation measures, including FBI projects, had been implemented in 147 Crown-owned PWGSC facilities by the end of March 2000, up from 128 facilities in March 1999.

National Defence has reduced its water use by 65% since 1989-1990. The reductions were achieved through retrofitting and renovation of existing facilities and the design of new facilities. Similarly, departmental energy use has declined 25% since 1989-1990 due to the adoption of energy conservation best practices and the use of energy performance contracts.

Health Canada was proactive in introducing alternative energy sources at its facilities. A ground source heat pump installed at the Tyendinaga Health Centre is expected to save \$1,000 per year in electricity. Also, the planning phase for the installation of a geothermal system was initiated at the Gane Yohs Health Centre. The system is expected to save \$10,000 annually in energy costs plus another \$10,000 per year in maintenance costs. The Earth Energy

Section 2: Progress within the Federal Government (continued)

GREENING GOVERNMENT OPERATIONS

The policy on Greening Government Operations provides guidance for federal departments and agencies on preparing sustainable development strategies. In the October 1999 Speech from the Throne, the Government reiterated its commitment to

greening its operations. Shown below are examples of pollution prevention and other environmental protection actions taken in 1999-2000 to "green" federal departments and agencies.

WASTE MANAGEMENT

- Waste audits performed and updated annually
- Waste reduction action plans developed and implemented
- Recycling system in place; composting where feasible
- Hazardous waste collected centrally, stored and disposed of safely

ACTIONS TAKEN

Health Canada implemented the zero waste program in nine buildings in the national capital area. Solid waste audits were conducted at various Transport Canada offices, and Public Works and Government Services Canada continued to assist its tenants in reducing waste.

WATER/ENERGY CONSERVATION

- Audits performed
- Conservation plans developed and implemented
- Water or energy-saving equipment and devices specified for future purchases (e.g. water-efficient fixtures, energy-efficient lighting and water heating)

ACTIONS TAKEN

Agriculture and Agri-Food Canada's Lethbridge (Alberta) Research Centre upgraded its irrigation system. Phase three of the project resulted in use reduction of over 100 million litres of water throughout the phase and is expected to lead to use reductions of 100 million litres of water per year. The department also undertook energy reduction measures at its research facilities in Newfoundland and Nova Scotia and water conservation measures at its Research Centre in Ottawa.

VEHICLE FLEET MANAGEMENT

- Fuel efficiency maximized and alternative fuels used to conserve energy and reduce emissions
- Number of vehicles for departmental use reduced
- Emissions testing and regular maintenance performed
- All vehicle used fluids and oils recycled

ACTIONS TAKEN

Indian and Northern Affairs Canada reduced its fleet by eight vehicles and achieved a 3% reduction in carbon dioxide emissions. Similarly, Citizenship and Immigration Canada explored some fleet optimization options by studying regional transportation alternatives.

PROCUREMENT

- "Green" clauses included in service and supply contracts
- Harmful chemical usage minimized (e.g. cleaning products, solvents, oil-based paints)

ACTIONS TAKEN

The procurement staff at one of Health Canada's laboratories in Winnipeg began to acquire and utilize rejuvenated toner cartridges for printers and fax machines.

TRAINING AND AWARENESS

- Staff trained in methods and informed of opportunities to conserve water and energy, reduce waste and make environmentally sensitive purchasing decisions
- Employees' awareness raised to optimize pollution prevention in their activities

ACTIONS TAKEN

Presentations on the CEPA 1999 pollution prevention planning provisions were given to Environment Canada staff across the country. The Department of Foreign Affairs and International Trade delivered similar training on pollution prevention.

REMEDIAL ACTIONS

- Equipment using CFCs and halons identified and alternatives introduced wherever possible
- Equipment containing PCBs phased out and PCBs not in use securely stored
- Fuel storage tanks meet the new guidelines and checked regularly for leakage

ACTIONS TAKEN

At year end, 72% of Public Works and Government Services Canada (PWGSC) facilities were reported free of PCBs. PWGSC also managed to stay well within its target of maintaining losses of refrigerant to a maximum of 4% per annum, with a loss of just 1% per annum.

Society of Canada, Natural Resources Canada and First Nation Technical Services were involved in helping Health Canada implement these initiatives

In Environment Canada's Dartmouth office, all of the windows on the south and west sides of the building were replaced with more energy-efficient tinted

glass. The project is expected to lessen heating and air conditioning needs and reduce energy consumption by 18%

Section 2: Progress within the Federal Government (continued)

RECOGNITION FOR HALON REDUCTION

National Defence has taken a proactive approach in the management of halons used in building fire extinguishing systems. As a result, the department was awarded the 1999 United States Environmental Protection Agency's Stratospheric Ozone Protection Award for its progress in the recovery, reclamation and reuse of halons.

WHAT IS GREEN PROCUREMENT?

Green procurement involves purchasing products and services that minimize environmental impacts. As the largest single buyer and property manager in Canada, the Government of Canada plays a leadership role in advancing green procurement. As an example of green procurement, Natural Resources Canada has committed to purchasing 10,000 megawatt hours of green power in Alberta for a 10-year period beginning in January 1998. In 1998 and 1999, a reduction of 18,000 tonnes of greenhouse gas emissions was realized.

Operations/Facility Management

National Defence, as part of its Environmental Assessment process, routinely identifies the potential impacts of its activities and projects on the environment during the planning stages. The identification of the environmental impacts allows for the appropriate selection of pollution prevention techniques and/or the mitigation of these impacts prior to project implementation.

To prevent spills of hazardous materials, National Defence has upgraded its web-based spill reporting tool, SpillNet. This tool allows the department to monitor trends and to identify and eliminate the circumstances contributing to spills.

Bioindicators were used by Environment Canada's Quebec Region to identify sources of air pollutants. Bioindicators have an advantage over conventional devices in that they absorb air pollution over a long period of time. This means that only 30 samples had to be analyzed, as opposed to 364 conventional samples. As a result, the analysis required the use of smaller quantities of chemicals and materials, as well as less energy from reduced travel.

Fisheries and Oceans Canada approved a department-wide Environmental Policy and Environmental Management Framework for its operations. The department completed baseline studies for 13 environmental aspects on 117 Coast Guard vessels. This information provided the basis for establishing fleet-wide objectives and targets for the department's environmental management system. It also provided the baseline from which annual environmental performance can be measured.

Environment Canada chairs a committee that advocates pollution prevention, economic incentives and enforcement as means to upgrade shipbuilding and repair facilities in Atlantic Canada. As a result of legal action in some shipyards, there has been an increased interest in adopting pollution prevention options at all shipyards in Atlantic Canada. On a related front, the technical authority for coatings applied to Canadian Forces ships now specifies coatings that emit less volatile organic compounds.

Environment Canada, in partnership with Correctional Services Canada, designated Warkworth Institution in Campbellford, Ontario, a pollution prevention demonstration site. The objective of this initiative is to show that the principles of pollution prevention can be successfully integrated into the Institution's daily activities. Six projects have been implemented and are being monitored. The results of these projects will be shared with other corrections facilities.



The Department of National Defence has a web-based spill reporting tool that monitors trends to identify and eliminate the causes of spills.

Vehicle Fleet Management

The Natural Resources Canada Fleet Management Program achieved a 38% reduction in total fleet from April 1995. The fleet size was reduced by 268 vehicles from a total of 700 vehicles. The number of vehicles capable of running on alternative fuel has reached 89.

Transport Canada helped reduce harmful gas emissions by purchasing 22 alternative fuel vehicles for the departmental fleet. This purchase brings the percentage of alternative fuel vehicles in that fleet to more than 10%, double the previous year's level. Agriculture and Agri-Food Canada, Health Canada and the Meteorological Service of Canada made similar purchases in 1999-2000.

Environment Canada's Quebec Region encouraged employees to use its electric vehicle for short trips under 60 kilometres in the course of their duties. The vehicle has travelled more than 3,800 kilometres. Its use in urban situations helped to reduce air pollutant emissions.

Section 2: Progress within the Federal Government (continued)

Training and Awareness

National Defence's Maritime Forces Atlantic Environmental Training Program provided training to Unit Environmental Officers in specialty topics and General Environmental Awareness Training lectures. Similarly, training was delivered to ground crew operators at Canadian Forces Base Trenton on best management practices for the more efficient use of glycol during aircraft de-icing activities. The training resulted in a 30% reduction in the amount of de-icing agent used. To promote other pollution prevention projects at Canadian Forces Base Trenton, a pollution prevention video was produced by Environment Canada in partnership with National Defence.

Environment Canada's Pacific and Yukon Region undertook an effort to increase the extent to which its environmental protection programs encourage pollution prevention solutions, as opposed to traditional pollution control and waste management. The effort included information sessions and meetings with individual program staff. Staff members who attended the information sessions were surveyed both before and after to gauge their ability to identify examples of pollution prevention and non-pollution prevention solutions. Comparison of the before and after survey results showed an improvement in average scores from 51% to 65%.

Parks Canada developed an Integrated Pest Management Directive that provides guidance on the management and minimization of pesticide use at facilities or on lands owned, administered, licensed or leased by Parks Canada. Parks Canada aims to completely eliminate the use of pesticides for cosmetic purposes at all of its facilities.

In its continuing efforts to assist the Atlantic Canada Opportunities Agency, Environment Canada provided technical support to the Agency's sustainable development training program. More than 100 staff members were trained across the region. Environment Canada also helped in the preparation of a guide book that

Through a variety of programs and initiatives, the federal government encourages its employees to use active transportation rather than traditional means for commuting.

encourages the inclusion of environmental planning and the adoption of eco-efficient practices in business plans submitted by applicants seeking financial support from the Agency.

Behaviour Change

As part of the Green Commute Program, Transport Canada installed shower facilities and bicycle racks at its headquarters in Ottawa. With these facilities in place, Transport Canada employees were encouraged to use active transportation, such as biking or walking, as a means to travel to work. The next two phases of the program will focus efforts on increasing the use of carpooling, public transit and telecommuting.

Transport Canada, Environment Canada, Health Canada and other federal departments participated in the First National Commuter Challenge. The event encourages employees to choose alternative means of travelling to work for one week. Federal government employees participated in "green commuting" practices, using public transit, car pools, cycling, in-line skating, walking to work or telecommuting. The project's long-term goal is to increase the number of green commuters by reducing negative attitudes and barriers against green commuting.

To decrease automobile use, all divisions of the Environment Canada Quebec Region's Corporate Affairs Branch were encouraged to use public transit. Before purchasing bus or train tickets, many employees checked to see if any other branches had staff travelling to the same place so they could share transportation.



Progress with Other Governments

All levels of government in Canada are working in close cooperation to ensure that the implementation of environmental protection is an ongoing priority.

National Partners

Under the mandate of the Canadian Council of Ministers of the Environment (CCME), federal, provincial and territorial government agencies are developing Canada-wide standards for substances including mercury, dioxins and furans, ozone and particulates, petroleum hydrocarbons and benzene. Pollution prevention is a guiding principle for implementation of Canada-wide standards. The standards include numeric targets and timelines for their achievement. Each jurisdiction is responsible for preparing action plans to meet each standard. Canada-wide standards for fine particulate matter, ground-level ozone, benzene (phase 1), and mercury from incineration and metal smelting were presented in November 1999 to the Ministers. Between fall 1999 and spring 2000, Ministers sought appropriate authority to formally sign these agreements.

Provincial, Territorial and Municipal Partners

At the launch of the west coast Georgia Basin Initiative in 1998, the federal and provincial environment ministries set action plan goals aimed at achieving clean air and clean water and conserving and protecting species and habitat. In January 2000, Environment Canada and the United States Environmental Protection Agency signed a Joint Statement of Cooperation on the Georgia Basin and Puget Sound Ecosystem. Issues of joint concern included air quality, point and non-point discharges to surface water and reduction of toxic chemicals. Currently the Georgia Basin partners are working cooperatively to develop indicators that will help measure progress toward sustainability in the region.

Parks Canada actively supported the Town of Banff's Community Energy Management Plan. The plan provided information about the consumption of energy and helped decision makers select programs and policies more likely to reduce energy consumption and expenditures. Implementation of the plan will lead to a 7% reduction in household energy expenditures and a reduction in per capita carbon dioxide

emissions of 20% below 1998 levels by 2010. Parks Canada, the Federation of Canadian Municipalities and Natural Resources Canada provided the funding for this project.

Environment Canada is participating in a pilot project with the City of Surrey, British Columbia, to minimize pollution created by residential developments. Environment Canada and many federal and provincial participants are part of the project's advisory committee. Phase 1, the development of a neighbourhood concept plan, has been completed. The proposed design will reduce pollution through energy- and resource-efficient street construction and by requiring transit and commercial services to be within a five- to six-minute walk. The project can be tracked via the Internet at: www.sustainable-communities.agsci.ubc.ca/projects/Headwaters.html.

The Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (COA) coordinates federal and provincial action in response to Canada's commitments under the Canada-United States Great Lakes Water Quality Agreement. Under COA, the Great Lakes 2000 Program made significant environmental improvements in the Great Lakes basin ecosystem through a cooperative effort of seven federal and four provincial ministries. Overall, a 71% reduction in the use, generation or release of Tier I substances (benzo(a)pyrene, hexachlorobenzene, alkyl-lead, mercury, octachlorostyrene, dioxins and furans) was achieved. Canada and Ontario remain committed to the rehabilitation, protection and conservation of the Great Lakes basin ecosystem and will continue to work cooperatively with basin stakeholders.

Though the Transportation Halifax (TRAX) program, alternative commuting methods in the Halifax Regional Municipality were implemented and promoted. The goal of the program is the reduction of greenhouse gas emissions from single-occupancy vehicles. The project's trip reduction program worked with three organizations, including Environment Canada.



Section 2: Progress with Other Governments (continued)

The TRAX website (www.trax.ns.ca) includes a sign-up form for carpooling opportunities.

As part of the ongoing national review of wastewater discharges, a coastal community sewage workshop was hosted by the Bluenose Atlantic Coastal Action Program, with support from Environment Canada, in October 1999. Over 150 participants, including city managers, interest groups from 17 communities in Atlantic Canada and officials from federal and provincial government departments, met in Lunenburg, Nova Scotia. Lunenburg is a United Nations (UNESCO) world heritage site but has no sewage treatment. Discussions focused on how to better manage sewage wastes through measures such as at-source control and economic incentives.

Addressing Climate Change

Under the direction of the National Climate Change Secretariat, Canada continued its effort to address the commitments made under the Kyoto

Protocol on Climate Change. By March 2000, 17 options reports were completed, profiling the efforts of 16 issues tables. These reports and their recommendations will be taken into account when formulating the national strategy on climate change. The strategy will be based on five priority areas: enhancing awareness and understanding; promoting technology development and innovation; investing in knowledge/building the foundation; governments leading by example; and encouraging action by all Canadians across all sectors of the economy.



The CCME annually awards companies and organizations who are leaders and innovators in incorporating pollution prevention into their activities.

Municipalities are key partners in efforts to reduce greenhouse gas emissions and to improve air and water quality. The Government of Canada is providing municipalities with \$125 million toward these efforts from 1999 to 2003 through two funds. The Green Municipal Enabling Fund is a five-year fund that will provide grants to cost-share energy audits and feasibility studies on projects designed to reduce greenhouse gas emissions and improve air and water quality, as well as to encourage the sustainable use of renewable and non-renewable resources. The Green Municipal Investment Fund will provide loans to enable recipients to carry out direct energy efficiency measures such as retrofitting buildings and public transit systems.

1999 CCME POLLUTION PREVENTION AWARDS

The Canadian Council of Ministers of the Environment (CCME) gives national recognition to companies and organizations showing innovation or leadership in pollution prevention. The 1999 CCME Pollution Prevention Awards were presented to

Westport Innovations Inc. of Vancouver, British Columbia, for commercializing a new high-pressure direct injection (HPDI) technology that allows the use of cleaner natural gas in diesel engines. HPDI reduces greenhouse gases, soot and smog-producing nitrogen oxides from existing diesel engines.

Martens Communications Inc. of St. Thomas, Ontario, for introducing new painting and coating processes that are free of volatile organic compounds (VOCs), a major product of smog.

Transit Systems Printing (B.W. Graham) of Owen Sound, Ontario, for its pollution prevention efforts. The energy recovery system had cut electrical usage by 31%. The company had also reduced VOCs and eliminated nitrogen oxides and sulphates while expanding production by more than 72% during the last three years.

The Canadian Aluminium Battery Association and the Remington Battery Recycling Corporation have made efforts to eliminate the use of mercury in the production of batteries and will launch a household battery recycling campaign. These efforts have reduced the amount of mercury entering the Canadian solid waste stream from these products from 440 tonnes in 1991 to virtually zero.

For more details on the CCME and these awards, visit the CCME website at www.ccme.ca/.

Progress with the Private Sector

Through partnerships with private sector corporations and associations, federal government departments are harnessing the forces of competition, innovation and entrepreneurship to prevent pollution.

Industrial Pollution Prevention

The Accelerated Reduction and Elimination of Toxics (ARET) program is a multi-stakeholder pollution prevention and abatement initiative involving industry, health and professional organizations as well as governments across Canada. Through voluntary actions, ARET seeks the virtual elimination of 30 persistent bioaccumulative and toxic substances as well as significant reductions in emissions of another 67 toxic substances. In the ARET report, *Environmental Leaders 3*, 169 companies reported decreases of 67% in total tonnes of toxic substances released in 1998 from base line data in 1995. In total, 43% of the 169 companies reported 100% reduction in releases of 10 or more toxic substances.

Environment Canada, the Ministère de l'environnement du Québec and other partners continued their efforts in Phase III of the St. Lawrence Action Plan, Vision 2000. Activities under Phase III will promote sound environmental management practices through voluntary action and the implementation of pollution prevention initiatives designed to reduce releases of 16 toxic substances. The industrial and urban component of the plan targets 61 plants in three industrial sectors: chemicals, metallurgy and metal processing. Currently in the beginning stages of Phase III, three plants representing the three target sectors have agreed to conduct pilot projects to test and perfect the program's approach. Studies reports and fact sheets on the plan and its results are available on the program's Internet site at: www.stl2000.ec.gc.ca.

The Canadian Industry Program for Energy Conservation (CIPEC) defines sector-specific energy efficiency targets. Natural Resources Canada worked with CIPEC's 20 voluntary sector task forces to determine the potential for energy efficiency improvements, establish a means of reporting and tracking progress, and create action plans for reaching targets. Once the CIPEC task forces have agreed targets and action plans, the Industrial Energy Innovators Initiative will provide a means for turning

sector commitments into company actions.

As of October 1999, 249 industrial companies were registered as Industrial Energy Innovators.

Sector-Specific Initiatives

Agriculture and Food

With the help of three local fish processing plants and the Atlantic Coastal Action Program/Humber Arm Environmental Association in Corner Brook, Newfoundland, Environment Canada developed and distributed a pollution prevention guide to local fish plants. The guide outlined methods for the reduction of waste, water and energy as well as alternative uses for fish wastes. It also included success stories relating how various fish processors took measures to minimize their environmental impact.

Environment Canada's Atlantic Region developed pollution prevention guidelines for the environmental assessment of aquaculture operations. The guidelines outlined best management practices and principles of pollution prevention in the design, construction, operation and maintenance of aquaculture facilities. Final guidelines will be distributed nationally to Environment Canada and other federal departments as well as industry project proponents.

The Ontario Sustainable Aquaculture Working Group includes members from Environment Canada, the provincial government, fish farmers, Ontario aquaculture association representatives and scientists from the University of Quebec Aquaculture Centre. The major tasks of the working group are to test and develop verifiable approaches to maintain acceptable water quality and fish health in the vicinity of aquaculture operations and to make recommendations for an environmentally sustainable aquaculture industry in Ontario. Efforts to date have focused on water-cage aquaculture operations including the development of a low polluting feed for farmed rainbow trout and the testing of fish waste collection systems.

HELPFUL ENVIRONMENTAL BUSINESS INFORMATION

Visit the Canadian Business Environmental Performance Office (BEPO), the one-stop information and services centre for small and medium-sized Canadian businesses that wish to improve their environmental performance at www.officedp.gc.ca/bepe. This site was developed jointly by Industry Canada and Environment Canada to improve the environmental performance of small and medium-sized businesses.



Section 2: Progress with the Private Sector (continued)

With Environment Canada's project direction and technical advice, the Livestock Manure Pollution Prevention Project provided solutions and advice to Ontario farmers on the issue of environmentally responsible manure management. Through the efforts of a government-industry working group, a brochure was published explaining the benefits of streamside buffers. The group produced a spills contingency plan decal that outlines an emergency action plan for farmers in case they have a manure spill. The working group also finalized a position paper on how to address the problems surrounding high-trajectory liquid manure irrigation guns. Irrigation guns have been implicated in 40% of the manure spills that have occurred in Ontario in the past 12 years.

The Alliance of Manufacturers and Exporters Canada—Manitoba Division Pollution Prevention Partnership Project assists the auto body and auto repair sector to reduce its use of toxic substances and lower the level of volatile organic compounds released. The Alliance, Environment Canada and Manitoba Conservation work together to support this project. The *Ontario Autobody Profitability Manual/Workbook* was revised to reflect the Manitoba sector and was used by the 85 member firms that attended the Manitoba Autobody Profitability Workshop and Tradeshow.

Chemical

The main elements of a Memorandum of Understanding (MOU) were negotiated between the Canadian Chemical Producers' Association (CCPA), the provinces of Ontario and Alberta and the federal departments of Environment, Industry and Health. The objective of the new MOU is the prevention and reduction of the release of chemical substances under CCPA's Responsible Care® program. It is projected that over the term of the MOU (until 2002), approximately 58% reductions in volatile organic compound emissions from a 1992 baseline and 25% from a 1997 baseline will have been achieved through pollution prevention nationally.


Construction

Natural Resources Canada and Environment Canada, in partnership with the Greater Vancouver Regional District, Industry Canada and others, promoted the use of EcoSmart concrete in major Vancouver construction projects. With EcoSmart concrete, at least 40% of the Portland cement traditionally used is replaced with flyash. Flyash is a byproduct of coal-burning power plants and is usually destined for landfill. In addition to providing a use for the flyash, replacing one tonne of cement with one tonne of flyash reduces industrial carbon dioxide emissions by approximately one tonne. By March 31, 2000, Public Works and Government Services Canada had incorporated waste reduction requirements for construction, renovation and demolition activities into its project delivery standards.

Over 1999-2000, waste reduction measures were implemented in at least four projects. The department, in partnership with the Canadian Construction Association, also developed and disseminated construction industry best practices for solid waste management.

The National Energy Board, Transport Canada, Environment Canada, Fisheries and Oceans Canada, and provincial environmental agencies cooperated to develop and implement stricter design and construction specifications for pipelines, highways and other activities that may potentially disturb naturally occurring acid-generating materials. Maritimes and Northeast Pipeline built over 1,400 kilometres of natural gas pipeline in New Brunswick and Nova Scotia that met the stricter design and construction guidelines. This approach avoided the generation of acid leachate and the associated release of metals in toxic concentration from native soils. It is expected that the specifications will be employed for distribution systems as well.

EnerGuide for Houses, developed by Natural Resources Canada, is a service that provides consumers with independent advice on how a home uses energy and where it is being wasted. As of October 1999, a total of 7,700 houses were evaluated in Canada. Implementing the recommended upgrades in a house generates average energy savings of 23%, while the average reduction in carbon dioxide emissions is 4.3 tonnes per house per year. This program was made more visible by the marketing efforts of key partners in the renovation industry and others such as financial institutions. For instance, the Yukon Housing Corporation is currently using the program to qualify homes for "green mortgages," which feature an interest rate below prime.



Environment Canada and Ontario farmers are working together to reduce the occurrence of manure spills through environmentally-responsible manure management programs.

Automotive

The Canadian Automotive Manufacturing Pollution Prevention Project is a partnership between member companies (Ford, General Motors and DaimlerChrysler) and Environment Canada and the Ontario Ministry of Environment. The project's goal is to produce a verifiable reduction of persistent toxic substances as well as other environmental contaminants of concern used, generated or released by the participating member companies of the Canadian Vehicle Manufacturers Association. Six progress reports have been released detailing the progress made by the 28 participating facilities, with 114 case studies. As of 1999-2000, 6,759 tonnes of listed toxics and over 332,000 tonnes of other substances of concern have been reduced or eliminated since the project began. Three supplier workshops were held to promote pollution prevention amongst the automotive suppliers.

Section 2: Progress with the Private Sector (continued)

ENVIRONMENTAL SOLUTIONS

To view the pollution prevention capabilities of Canada's best technology and service firms, visit Canadian Environmental Solutions (CES) at: strategis.ic.gc.ca/CES. Developed by Industry Canada, CES addresses environmental problems related to water, air, soil, energy, and research and development. It is a direct link to solutions and to Canadian companies that can supply them. CES works because it is exhaustive—it describes 2,000 environmental problems and solutions, along with more than 850 solution-providing companies!

Dry Cleaning

Environment Canada funded the development of infrastructure to deliver an environmental training package to dry cleaners in British Columbia. A mandatory, industry-driven training and certification program was recommended, to provide high levels of compliance with consistent standards while delivering built-in benefits for dry cleaners. Infrastructure development will continue in 2000-2001. This work is part of a larger effort on the part of Environment Canada to reduce dry cleaning perchloroethylene consumption from 5,500 tonnes (1994 estimate) to 1,600 tonnes annually.

Environment Canada's Wet Clean Demonstration Project utilizes Japanese technology to reduce the use of detergents in wet cleaning. Traditional wet cleaning serves as a replacement for dry cleaning, which uses toxic perchloroethylene. Yet traditional wet cleaning produces a different type of pollution problem—detergents are sources of phenols and biological oxygen demand. The goal of this project is to reduce detergent use by 40% in the on-site demonstration at Our Cleaners in Barrie, Ontario. This project will show reductions in water and energy use while increasing the volume of clothing cleaned.

Health Care

Operation Green: An Instrument for Change was a joint project undertaken by the Atlantic Coastal Action Program (Cape Breton), Environment Canada and the Cape Breton Regional Hospital. The project included a number of initiatives aimed at reducing the impact of the hospital's operations. Results include a 10% reduction in energy use, a 15% reduction in liquid wastes and a 6% reduction in air emissions.

Marinas/Harbours

Fisheries and Oceans Canada addresses the environmental impacts of operations at harbours where fishing is practised. During 1999-2000, the department established and implemented environmental management plans for 347 of 559 small craft harbours—an 18% increase over the previous fiscal year. It is the department's goal to have plans in place for all small craft harbours by 2002.



Fisheries and Oceans Canada is working to establish environmental management plans for all small craft harbours by 2002.

Metal Finishing

Ontario's Metal Finishing Industry Pollution Prevention Project is a partnership between the metal finishing industry, their associations, and the federal and provincial governments. The project promotes the development and implementation of site-specific pollution prevention plans by member companies of the Canadian Association of Metal Finishers and the American Electroplaters and Surface Finishers Society. The Sixth Progress Report from the task force was released in September 1999 and reported on the progress of substance use and waste reductions. Twenty-six metal finishing companies participated in the project with a total of 32 documented case studies, four more than last fiscal year. The project has reduced or eliminated almost 2.58 million kilograms of pollutants and over 75 million litres per year of water use, for a total savings of over \$750,000 per year. Ninety-four employees from 35 organizations have completed training in pollution prevention planning.

Through the Alliance of Manufacturers and Exporters Canada—Manitoba Division Pollution Prevention Partnership Project, a series of pilot projects and training courses were implemented within Manitoba's metal finishing sector. Environment Canada is a member of the Metal Finishing working group (co-chaired by Bristol Aerospace and Standard Aero). During 1999-2000, three pollution prevention audits were undertaken and six chemical management training courses were delivered at member facilities. This project will assist Manitoba metal finishers in reducing their use of toxic substances and other substances of concern and in improving their overall environmental performance.

Section 2: Progress with the Private Sector (continued)

Mining

Natural Resources Canada worked with industry through the Mine Environment Neutral Drainage 2000 Program (MEND 2000). The program was aimed at developing technology for the prevention or control of acidic drainage within a three-year timeframe ending in 2000. Closure technology was developed to prevent acidic drainage through the use of layered combinations of natural soils and organic materials that act as dry covers on mine tailings. For more information, visit: mend2000.nrcan.gc.ca.

of the new *Canadian Environmental Protection Act*, the Government of Canada now has the authority to regulate emissions from off-road engines. The MOU is a voluntary agreement between Environment Canada, recreational marine engine manufacturers and the CMMA to fast-track the introduction of cleaner engines into Canada. The agreement covers outboard engines and personal watercraft engines. Engine manufacturers have voluntarily committed to supply these cleaner engines in Canada starting with the 2001 model year.

environmental management initiatives at 28 golf courses throughout Ontario. The goal is to reduce the use of chemicals and improve the overall environmental quality at golf courses. In addition, Environment Canada developed guidelines outlining best management practices and principles of pollution prevention in the design, construction, operation and maintenance of golf courses.

Transportation

Through a funding agreement, Environment Canada contributed to the identification of pollution prevention priorities for Air Canada's Technical Centre at Dorval International Airport in Montreal, Quebec. Priority projects were identified and will be implemented next fiscal year. The projects include the cleaning and degreasing of aircraft parts, and development of computer software to help Air Canada in its management of hazardous waste.

In 1999-2000, Environment Canada and the Ottawa-Carleton Regional Transit Commission entered into a partnership to implement a number of pollution prevention projects aimed at eliminating or reducing the use of products containing hazardous chemicals in one of their maintenance garages. After a review of existing operational activities and in consultation with OC Transpo, six projects were identified and selected for implementation. Projects include the replacement of organic degreasing solvents with water-based degreasing fluids and substitution of a methyl ethyl ketone (MEK)-based paint gun cleaner with a non-MEK cleaner.

Printing and Graphics

The printing industry across Canada, in partnership with government agencies including Environment Canada's regional offices, is developing sector-wide environmental management programs based on pollution prevention principles. Activities across Canada include the Atlantic Green Printers Project, CleanPrint Ontario, B.C. Printing Project, Manitoba Green Printing Project and an initiative of the Association des arts graphiques du

Québec. Some regions have undertaken workshops, while others have drafted environmental management systems guides on best practices. The programs assisted printers in reducing or eliminating wastes at source through voluntary actions resulting in environmental compliance, improved operations, less waste and financial savings. In Ontario, companies participating in the project have reduced their emissions of toxic substances and other environmental contaminants of concern by 661 tonnes. For more information, visit: www.cleanprint.org.

The Tailings and Waste Rock Program provided technical knowledge and expertise to the Canadian mining industry in managing solid mine waste. Natural Resources Canada provided expertise on long-term management options for mine waste through the development of contaminant prevention techniques and disposal technologies. An example of a contaminant prevention technique is the use of water covers for storage and disposal of mine tailings. Water covers prevent acid generation and subsequent metal mobilization from the tailings.

Recreational, Utility and Off-Road Engines

January 2000 marked the signing of a Memorandum of Understanding (MOU) between Environment Canada and the Canadian Marine Manufacturers Association (CMMA). With the passing

Tourism

The Golf Course Eco-Efficiency Project is a partnership between GreenLinks Eco-Efficiency Services, Burnside Golf Services and Environment Canada to promote pollution prevention and other



With the help of federal government agencies, the printing industry is undertaking regional initiatives to develop sector-wide environmental management programs based on pollution prevention.

Section 2: Progress with the Private Sector (continued)

ECO-EFFICIENCY

involves the delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life cycle, to a level at least in line with the earth's estimated carrying capacity. (World Business Council for Sustainable Development)

Training and Awareness

The Nova Scotia Department of Natural Resources, Nova Scotia Power, the Illuminating Engineering Society of North America (Bluenose Section) and Environment Canada combined resources to promote the use of energy-efficient light bulbs in commercial enterprises. Contractors and likely clients were invited to 10 workshops that highlighted the benefits of these bulbs. As a result of the workshops, at least 20 commercial enterprises have made modifications and are very pleased with the economic and lighting results. Ten lighting contractors participated in the workshops and now routinely advocate energy-efficient lighting changes to all clients. A total of 10,000 brochures were mailed out to businesses and contractors.

Each year in the Atlantic Region, approximately 2,500 reports of environmental emergencies are received by a spill reporting network of Environment Canada, which now contains over 10,000 entries. The provincial environment departments, Fisheries and Oceans Canada and the Canadian Coast Guard play significant roles in this work. Information is analyzed to identify spill trends or problem areas and is frequently used by industry when undertaking environmental audits. This year a report will be published that summarizes years of data and should enable targeted prevention programs to be developed. Environment Canada's Environmental Emergencies Section frequently organizes, provides or participates in training and information sessions for various audiences relating to preventing spills.

Small and Medium-Sized Businesses

Environment Canada and the Miramichi River Environmental Assessment Committee co-hosted an EnviroClub™ awareness session for businesses in Miramichi, New Brunswick. The EnviroClub™ concept builds on a successful Quebec pilot project that targets small and medium-sized businesses. Presentations focused on how the program could enable firms to enhance business competitiveness, profitability and environmental performance by adopting pollution prevention approaches. As a result of the workshop, 20 businesses have expressed an interest in participating in EnviroClub™. The Committee has also worked with several small and medium-sized businesses to develop environmental management plans. The plans help incorporate pollution prevention, treatment and recycling into overall business practices.

RENEWABLE ENERGY DEPLOYMENT INITIATIVE

The Renewable Energy Deployment Initiative (REDI) is a six-year, \$24-million program created in 1998 to stimulate demand for renewable energy systems for space and water heating and cooling. REDI supports the evolution of the renewable energy industry into a competitive supplier of low environmental impact energy to Canadians in the medium and long term. REDI is delivered by the Renewable and Electrical Energy Division (REED) of Natural Resources Canada and is a component of the Department's broad Efficiency and Alternative Energy Program. REDI supports four systems: solar water heating systems, solar air heating systems, ground-source heat pumps (earth energy systems) and high-efficiency, low-emission biomass combustion systems. REDI promotes these systems through financial incentives to industry and government, marketing strategies and assessments, and infrastructure development. For more information about REDI, visit: www.nrcan.gc.ca/es/erb/reed.

Encouraged by the success of the initial EnviroClub™ pilot project in Quebec, Environment Canada, in partnership with Economic Development Canada, has initiated recruitment for two more projects in the province. The goal is to have 24 small and medium-sized businesses from the manufacturing sector participate in workshops and initiate pollution prevention projects in their facilities.

During 1999, Natural Resources Canada collaborated with Alcan Aluminium Limited on a pilot project to introduce eco-efficiency concepts into small and medium-sized enterprises that supply goods and services to large natural resource sector companies in the Saguenay region of Quebec. By adopting eco-efficiency concepts in their business processes, companies benefit from reduced energy and materials consumption as well as decreased waste production.

The Eco-efficiency Centre in Burnside (Halifax, Nova Scotia) is a non-profit centre supported by a team of public and private partners and sponsored by federal, provincial and municipal governments, as well as private industry and educational institutions. In June 1999, the Centre launched the Eco-Business Program to



Section 2: Progress with the Private Sector (continued)

encourage small to medium-sized businesses to commit to making eco-efficient improvements in their operations. The program is aimed at raising awareness on the benefits of making the right environmental choices. The registered businesses are challenged to reduce the environmental impact of their company while increasing profitability. The Centre provides information and some technical assistance and helps companies set and meet targets in the areas of energy efficiency, water conservation, reduction of solid waste and reduction of environmental risk. Fifteen companies joined in June 1999, and by January 2000, that number had grown to 45. Environment Canada staff participate on the Steering Committee of this initiative.

Research and Development

Technology Partnerships Canada (TPC) is a technology investment fund operated by Industry Canada. In 1999-2000, TPC invested \$98 million in eight environmental technology projects, which will leverage approximately \$296 million more from other sources. Examples of funded projects include: developing a hybrid electric bus that operates on diesel and electricity; developing advanced industrial gas turbine technologies that produce cleaner, more efficient power; and developing closed-system technologies that decrease the loss of raw materials, increase mill efficiency and productivity, and reduce or eliminate the production of pollutants. For more information, visit: tpc.ic.gc.ca.

Economic Development Canada, with technical support from Environment Canada, approved eight projects designed to test and market environmental technologies, for an estimated investment of \$8.2 million. The projects were delivered under the Innovation, Development of Entrepreneurship and Export Program and the Strategic Regional Initiative.

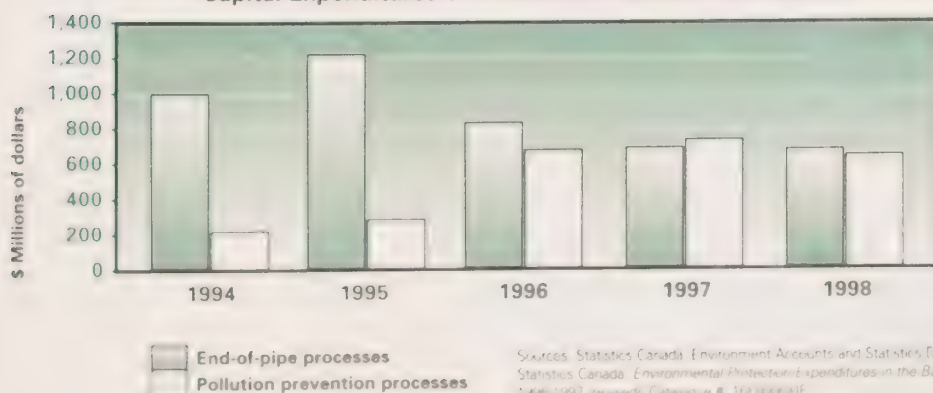
Natural Resources Canada (NRCan) coordinated the Canadian Lightweight Materials Research Initiative, a government and industry partnership aimed at developing materials and manufacturing processes for fuel-efficient vehicles. The program's technical focus is weight reduction in ground transportation—for every 10% reduction in vehicle weight there is a 6% to 8% improvement in fuel efficiency. With decreased fuel consumption comes less urban smog, cleaner air and reduced emissions of carbon dioxide. The program began in April 1999 with an initial set of 11 projects. In addition to NRCan, the National Research Council and five universities perform the research, supplemented by the work of private sector research and development centres.

The Microwave-Assisted Processes (MAP™) are a family of clean processing technologies that were developed and patented by Environment Canada's Environmental Technology Advancement Directorate. The MAP™ technologies are characterized by significant reductions in energy consumption, waste generation and

toxic releases. Recent developments have focused on edible oils and solvent-free chemical synthesis with zero-toxic release. As of March 2000, Environment Canada had negotiated 10 licences with private sector companies for the commercialization of various applications of these patented processes.

Statistics Canada, through a Survey of Environmental Protection Expenditures, collects data on the expenditures made by primary and manufacturing industries, electric power and gas distribution facilities as well as pipeline transportation facilities. Since 1995, the second survey year, businesses have steadily reduced their investment in end-of-pipe technologies, while 1998 represented the first year investment in pollution prevention declined. In 1998, business investment spending on environmental protection decreased slightly from the previous year while remaining above \$1.7 billion.

Capital Expenditures on Pollution Prevention and Control



Progress with the Canadian Public

Canadians are becoming more proactive in addressing environmental challenges through community-based initiatives and reliable information tools and networks.

ECOLOGO™ PRODUCTS AND SERVICES

TerraChoice Environmental Services Inc., on behalf of Environment Canada, manages and delivers the Environmental Choice Program (ECP), an eco-labelling program that helps individuals, corporations and governments make informed purchasing decisions to reduce their environmental impacts. Over 2,800 brand name products now bear ECP's EcoLogo™, products such as appliances, cleaners, electronics and paints. For more information, visit: www.environmentalchoice.com.

Citizen-Driven Activities

Through its Millennium Eco-Communities Initiative, Environment Canada encouraged groups across Canada to identify themselves as Millennium Eco-Communities (MECs) committed to local environmental improvement. To become a MEC, a group of concerned people from a geographic community, or a community of interests, comes together to set goals and create an action plan for clean air, clean water, nature and climate change. The MEC can register its goals and action plan on the MEC website. For more information, visit: www.ec.gc.ca/eco.

Public Awareness Campaigns

"Home Green Ups" is a two-year pilot project undertaken by the Newfoundland and Labrador Conservation Corps. Youth-led EcoTeams conduct home audits and, in follow-up discussions, show residents how to better manage energy, water and waste, promote active transportation (such as cycling and walking) and encourage pesticide-free yard care. Environment Canada and Human Resources Development Canada, along with provincial governments and industry, are partners in this project. To date, 1,000 homes were assessed, with a target of 3,000 by June 2001. A database is in development for tracking energy and water consumption changes, energy retrofits installed and changes in waste management and lawn care practices.

On a similar note, Clean Nova Scotia launched the "Home Tune Up" program with a goal of carrying out 2,000 household environmental assessments in the Halifax Regional Municipality. Assessors provide written recommendations to households on ways to reduce energy use, water use and wastewater creation, manage solid waste, and practise chemical-free lawn and garden care. Environment Canada is a partner in the project. By March 2000, over 300 assessments had been done. Early indications show many homeowners are implementing the assessors' recommendations and have realized measurable savings on utility bills.

THE AUTOSMART PROGRAM

Currently, the vehicles Canadians drive create about 30% of the total carbon dioxide emissions in Canada. Natural Resources Canada has developed the AutoSmart Program to provide Canadian motorists with helpful tips on buying, driving and maintaining their vehicles in a way that will reduce fuel consumption. The AutoSmart website offers interactive online services such as a fuel consumption guide, profiles on the most fuel-efficient vehicles and information on the EnerGuide label for vehicles. For more information, visit: autosmart.nrcan.gc.ca.

Active and Safe Routes to School is a national program focused on improved air quality and climate change management; increased physical activity among children; increased pedestrian safety around schools; and an enhanced sense of community. Over 1,500 schools have officially registered in the program. In 1999, more than 500 schools participated in National Walk a Child to School Day. This event demonstrated the relationships between lifestyle choices and issues of air quality, climate change and personal health, safety and security. The Active and Safe Routes to School program and National Walk a Child to School Day are supported by Go for Green, Health Canada, the Government of Canada Climate Change Action Fund, and health and municipal organizations. More information is available at: www.goforgreen.ca.

The Action by Canadians (ABC) program addresses climate change by teaching Canadians how they can reduce greenhouse gas emissions. Workshops were delivered in the workplace, giving participants practical ways to reduce emissions at home, on the road and in their communities. The program invited participants to make written pledges and measure their results over time. Participants in early demonstrations of the workshops pledged to cut carbon dioxide emissions by an average of two tonnes per year each. The federal government provided funding from the

Section 2: Progress with the Canadian Public (continued)

Climate Change Action Fund, and 14 of the Energy Council's member companies across Canada have also contributed funding.

"Operation Burn Clean" encourages Canadian consumers to use wood stoves and fireplaces that are certified as clean-burning to improve air quality, safety and wood-burning efficiency. Certification is the responsibility of the Canadian Standards Association or the United States Environmental Protection Agency. Stoves and fireplaces using advanced technology produce a more stable fire and cut overall pollution by up to 90% compared with older models. They also use 33% less wood than conventional models, saving consumers money. Fuel savings could repay an investment in this new technology in as little as two to three years. The program is funded by Natural Resources Canada and Environment Canada, with support from various industry partners. For more information, visit: www.woodheat.org/links/burnclean/burnclean.htm.

"Earth Tones" is a television series focusing on environmental science taking place at Environment Canada, Agriculture and Agri-Food Canada, Fisheries and Oceans Canada, Health Canada and Natural Resources Canada. The series of "Millennium Moments" profiled the past work and scientific breakthroughs of government scientists that continue to benefit Canadians. Topics include integrated pest management, wildlife and habitat protection and resource issues.

Health Canada produced an informative video on the environmental risks associated with groundwater contamination and how to ensure the current supply remains clean. The video, entitled "www.groundwater.com," was produced together with 20 private and public sector partners, including Environment Canada. Copies of the video, which has been aired on community television, were distributed to all municipalities and First Nations in British Columbia.



Health Canada encourages an active lifestyle that will not only help the environment but also the physical health of children through such programs as Active and Safe Routes to School and National Walk a Child to School Day.

Access to Information

The Canadian Pollution Prevention Information Clearinghouse (CPPIC) is an Internet tool that links Canadians to the information they need to practise or support pollution prevention. A variety of pollution prevention documents such as technical reports, fact sheets, tip sheets, guides, legislation, regulations, training materials and success stories are made accessible through CPPIC. New sections for 1999-2000 included P2 for Youth, Frequently Asked Questions, and a Glossary. Environment Canada is responsible for development, maintenance and promotion. Visit CPPIC at: www.ec.gc.ca/cppic.

The third Canadian Pollution Prevention Roundtable, "Innovators in Pollution Prevention," was held in Vancouver in 1999. Over 125 participants representing business, consultants, universities, governments and non-government organizations discussed pollution prevention issues and celebrated Canadian achievements. The event included a pollution prevention planning workshop using proven business examples and a tour of pollution prevention efforts at Tilbury Cement. Environment

Canada provided partial funding support, and the Canadian Centre for Pollution Prevention, a non-profit organization, coordinated the event. For more information, visit: www.c2p2online.com.

Progress with the International Community

International agreements, scientific cooperation and technology transfer are ways in which Canada works with the international community to lead and support the promotion of pollution prevention.

International Agreements and Technology Transfer

As part of the Climate Change Action Fund, Technology Early Action Measures (TEAM) provided financial support for international demonstrations of climate change technologies. Industry Canada and Technology Partnerships Canada, through their involvement in TEAM, sponsored one climate change project in 1999-2000.

The year 1999 marked the 25th anniversary of the Great Lakes Water Quality Agreement between Canada and the United States. Those 25 years marked the restoration and enhancement of the water quality in the Great Lakes system. Environmental successes included reductions in the discharge of nutrients, persistent toxic substances and other contaminants; declining levels of persistent toxic substances in the tissues of fish and wildlife (PCBs, DDT and mercury have declined in fish and wildlife by as much as 90%); enhancements in water quality; and improvements in ecosystem health as measured in the populations of sentinel species such as the bald eagle, osprey and lake trout.

In an effort to meet one of the key goals of the Great Lakes Water Quality Agreement, Canada and the United States worked on purging the Great Lakes of persistent toxic substances. The Binational Toxics Strategy (BNS) set reduction targets for specific substances over the 1997 to 2006 timeframe. Seven workgroups, formed to identify ways to virtually eliminate these substances, have completed the information gathering stage of the strategy and are now concentrating on identifying cost-effective options to achieve reductions. Workgroup activities and results include:

- a report for PCDD (Dioxins) and PCDF (Furans) Reduction Options;
- draft reports on Benzo(a)pyrene (B(a)P) Reduction Options, Hexachlorobenzene (HCB) Reduction Options, and Alkyl-Lead Sources, Regulations and Options; and



Canada and the United States have been working together to ensure the health of the Great Lakes and their surrounding communities through initiatives under the Great Lakes Water Quality Agreement.

- reported PCB reduction, as of April 2000—approximately 70% of high-level PCB wastes have been destroyed, up from approximately 40% in spring 1998 when work in support of the BNS began.

Progress toward achieving the goals of the strategy can be followed at: www.epa.gov/glnpo/bns.

In December 1999, Canada signed the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (AEGLO) with 23 European countries and the United States. Provisions for setting goals to reduce transboundary emissions of air pollutants (i.e. sulphur dioxide, nitrogen oxides and volatile organic compounds) that contribute to acid rain and ground-level ozone are found under the AEGLO Protocol.

Under the direction of the Canadian International Development Agency, Natural Resources Canada and project consultants began work with the Russian Association of Energy Efficiency Demonstration Zones. This project, initiated in January 2000, will help participating Russian oblasts develop municipal capacity to implement energy efficiency policies and programs. In addition,

Section 2: Progress with the International Community (continued)

THE CANADIAN INTERNATIONAL DEVELOPMENT AGENCY

The Canadian International Development Agency continues to work diligently to advance and enable pollution prevention internationally. Described below are some ongoing pollution prevention projects and the progress made in 1999-2000. These projects were implemented in conjunction with the private sector and a number of other federal government departments.

ARPEL Project (Central America)

Environmental Services Association of Alberta is working with the Latin American association of state-owned oil and gas companies (ARPEL) to enhance the ability of member companies to develop and implement environmental protection and management plans, programs and guidelines. During the 1999-2000 fiscal year, a total of eight guidelines, five regional workshops, three simulation workshops, 11 technical reports, and two direct technical assistance activities were completed.

China-Canada Cooperation Project in Cleaner Production (Asia)

This five-year project, begun in 1996, assists China in implementing cleaner production in priority sectors. At Fuyang Chemical General Works, cleaner production solutions generated a savings of approximately \$1 million a year from such activities as the recovery of 4,700 tonnes per year of ammonia, 550 tonnes per year of sulphur and 1,400 tonnes per year of hydrogen in equivalent ammonia, and the reduction of 37,000 tonnes per year in water consumption. At the Anhui Paper Mill, implementation of 11 minimal-cost solutions generated savings of around \$700,000 a year and included benefits such as chemical oxygen demand reduction, soda recovery and reduced energy and water consumption. For more information, visit: www.chinacp.com.

FCQGED (Africa)

The intent of the Front Commun Québécois pour une Gestion Écologique des Déchets (FCQGED) Environmental Training and Pilot Project is to increase the awareness of textile sector stakeholders of new pollution prevention measures and to implement pilot projects using these measures at a number of textile companies in Tunisia. During 1999-2000, 30 people attended a workshop delivered in Quebec on pollution prevention in the textile industry.

it will introduce Canadian energy and environmental technologies and capabilities to the Russian market. The expected result is a reduction in greenhouse gas emissions through more efficient use of energy resources.

North, Central and South America

In Guatemala, the Canadian International Development Agency funded the Community Pedal Power Project. The project's goal is to develop sustainable and self-sufficient small-scale food production and processing techniques in rural communities. Local partners worked with rural indigenous Mayan (Cakchiquel, Quiché, Mam) campesino communities to assess their needs and to provide bicycles that serve as pedal-powered devices (bicimáquinas). There are two types of devices: pedal-powered pumps, hooked up to draw water easily and quickly from

wells, and pedal-powered mills to grind coffee, corn and other grains. In 1999-2000, 74 pedal-powered machines were built and provided to local community groups, and 45 micro-projects including loans were in progress.

In Havana, Cuba, Bicicletas Cruzando Fronteras (Bicycles Crossing Borders) created self-sustaining bicycle cooperative shops, operated primarily by women, to distribute bicycles to the needy and to rent and repair bicycles. The project is funded by the Canadian International Development Agency through Hermandad Multiuse de Bicicletas (Office of the Historian, Old Havana). This project will contribute both to carbon dioxide emission reductions and to the program of making Old Havana a car-free city. At present, only 10% of the people in Old Havana have bicycles. The goal of this

project is for two state-of-the-art bicycle repair shops to employ approximately 30 people and be capable of servicing about 3,200 bicycles annually.

Asia and Africa

The China-Canada Jiangsu SME (Small and Medium-sized Enterprises) Applied Management and Environment Project provided assistance in management and in environmental and business planning capacity to townships and village enterprises (TVEs) in Jiangsu Province in China. This \$12-million project, sponsored by the Jiangsu provincial government and the Canadian International Development Agency, involves various agencies of the provincial government. The project promoted TVEs' awareness of waste minimization, cleaner production and more environmentally sound technology alternatives through demonstration and pilot projects and through training programs. For more information, visit: fit.org/smeep.

The Asia-Pacific Economic Cooperation Industrial, Science and Technology Group is focused on industrial voluntary action initiatives and market-driven business opportunities associated with the environment. As a Canadian participant in the workgroup, the National Research Council is providing technical leadership and project management in the field of cleaner production processes to establish collaborative research and demonstration projects. The Department of Foreign Affairs and International Trade provides advice on policy issues. In 1999, a Cleaner Production by Design workshop took place in Chinese Taipei. Pilot projects were identified for research on solar energy in Thailand and Indonesia, and the development of Internet networks for best practices.

Section 2: Progress with the International Community (continued)

THE KYOTO PROTOCOL

Canada continued negotiations on climate change under the Kyoto Protocol with the aim of concluding a legal instrument on commitments. To this end, Canada participated in the 5th Conference of the Parties to the Protocol in Germany in October, 1999, and the Department of Foreign Affairs and International Trade provided assistance to Canadian business to utilize the Clean Development and Joint Implementation mechanisms under the Protocol. Canada's reduction target is 6% below 1990 levels within the 2008 to 2012 timeframe.

In the wake of unprecedented urban growth in Asia, the Canadian International Development Agency, through the Canadian Universities Consortium, has collaborated with the Asian Institute of Technology (AIT) in the design and development of a graduate field of study in Urban Environmental Management at AIT. The purpose of this partnership is to develop the

environmental management skills of practitioners, academics and researchers through initiatives such as demonstration projects. Examples of such projects include the implementation and demonstration of cleaner production techniques for hotels in Thailand and the integration of urban environmental management in Yala City, Thailand.

The Vietnam-Canada Environment Project is an institutional strengthening project, funded by the Canadian International Development Agency, that targets environmental management agencies in Vietnam. A pollution prevention guide was developed to enable the National Environment Agency and the Department of Science, Technology and Environment to standardize the manner in which pollution prevention programs are carried out. The approach was piloted at five plants: a textile company, leather company, brewery, confectionery, and aluminum frame production factory.



Annual meeting of the Pollution Prevention Coordinating Committee in Toronto, April 2000.

Moving Forward

As the largest single enterprise in the country, the federal government can make a significant difference in Canada's prospects for sustainable development.

Sustainable development is not a destination that can be achieved with a one-time effort. It is a systematic process requiring planning, action, learning and improvement. Work in the five targeted sectors of the federal Pollution Prevention Strategy is building momentum and is achieving positive results. A preventive approach based on continual improvement will help turn sustainable development from talk into action. With a heightened focus on demonstrating results, new and continuing initiatives will promote the use of processes, practices, materials, products and energy that avoid or minimize the creation of pollutants and waste.

The results of this report, *Progress in Pollution Prevention 1999-2000*, demonstrate the Government of Canada's commitment to "institutionalize pollution prevention across all federal government activities," as stated in *Pollution Prevention—A Federal Strategy for Action*. This report also demonstrates that the right incentives will not only protect and improve our environment, but will also help Canada gain a competitive advantage in the industries of the future.

Environment Canada will use the new tools in the *Canadian Environmental Protection Act, 1999* (CEPA 1999) to ensure strong protection for the environment and human health. The Act underscores the importance placed by the Government of Canada on the prevention of harm to human health and the environment and its commitment to sustainable development.

Environment Canada will also continue to work with other federal departments in the development and implementation of science-based pollution prevention strategies. To foster this relationship and recognize achievements, all federal departments are encouraged to record their pollution prevention efforts during the year for inclusion in upcoming annual progress reports.

Having developed consensus and commitment to a coordinated approach, federal departments will continue to "green" operations. Many departments have shown leadership in setting best practices as well as specific performance measures. Identifying gaps in environmental baseline data and performance measures will continue to be a priority.

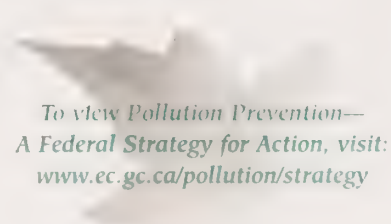
The Government of Canada will continue to strengthen the country's science and knowledge base in order to better understand the impacts of toxic substances and substances of concern on human health and the environment. A focus will be on the health of the most vulnerable populations: children and Aboriginal people. A sound foundation of scientific knowledge will support the prevention or reduction of threats to the environment and health of Canadians.

Work will move forward with the provinces and territories to set Canada-wide standards, using a scientific foundation and a risk-based approach, for priority substances including mercury, dioxin and furans, ozone, particulates and benzene. Some jurisdictions have also chosen to consult further with industry, municipal, environmental, health and Aboriginal groups on the development and implementation of these standards.

Access to vital knowledge, tools and funding will remain essential to recognize and encourage the abilities of individuals and communities to adopt and promote pollution prevention.

The pollution prevention successes achieved in 1999-2000 leave the Government of Canada well positioned to deliver a stronger and healthier environment in the new millennium.

The Pollution Prevention Coordinating Committee encourages all Canadians to become active in the advancement of pollution prevention. Federal departments can facilitate and coordinate partnerships with businesses, environmental groups, scientists, Aboriginal communities, other governments and individual citizens. By continuing to work together toward the goal of preventing pollution at the source, Canadians will protect the environment and human health and secure a sustainable economy for generations to come.



To view *Pollution Prevention—A Federal Strategy for Action*, visit:
www.ec.gc.ca/pollution/strategy

Appendix I

Pollution Prevention Coordinating Committee Membership List

ENVIRONMENT CANADA

National Office of Pollution Prevention

James Riordan (Chairperson)
John de Gonzague (Vice Chairperson)
Kathi De (Coordinator)

Environmental Technology Advancement Directorate

Patricia Mitchell / Adrian Steenkamer

Regions

Rodger Albright
Atlantic Region
Thanh Thao Pham
Quebec Region
Brad Cumming / Ron Nobes
Ontario Region
David Noseworthy
Prairie & Northern Region
Snehal Lakhani / Andrew Green
Pacific & Yukon Region

Interdepartmental Network on Sustainable Development Strategies (INSDS)

Craig Ferguson / Stefania Trombetti

NATURAL RESOURCES CANADA

Richard Arseneault / Chris Callaghan

Federal Committee on Environmental Management Services

Richard Arseneault

INDUSTRY CANADA

Environmental Affairs Branch

Giorgio Grappolini

NATIONAL DEFENCE

Directorate Environmental Protection

Holmer Berthiaume / Sean Baptiste

CANADIAN INTERNATIONAL DEVELOPMENT AGENCY

Environment Division

Tina Bailey

FISHERIES AND OCEANS CANADA Real Property Management Directorate

Susan Martin

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

Environmental Services

Monique Thériault

TRANSPORT CANADA

Environmental Affairs

Alec Simpson / Saleem Sattar

DEPARTMENT OF FOREIGN AFFAIRS AND INTERNATIONAL TRADE

Environmental Services

Jaye Shuttleworth

AGRICULTURE AND AGRI-FOOD CANADA

Corporate Services Branch-Asset Management and Capital Planning Directorate-Engineering Services

Pierre Laplante

HEALTH CANADA

Environmental Management Systems Division

John Horricks / Karen Prince

Members can be reached through the
Government of Canada Employees Directory
at: <http://canada.gc.ca/search/direct500/>.

Appendix II

Federal Department and Agency Contributors

Environment Canada
Agriculture and Agri-Food Canada
Canadian International Development Agency
Citizenship and Immigration Canada
Economic Development Canada
Fisheries and Oceans Canada
Foreign Affairs and International Trade
Health Canada
Indian and Northern Affairs Canada
Industry Canada
National Defence
Natural Resources Canada
Parks Canada
Public Works and Government Services Canada
Statistics Canada
Transport Canada

On the Internet view this report at:
www.ec.gc.ca/p2progress

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Sean Baptiste, National Defence

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This report was prepared by the Canadian Centre for Pollution Prevention Inc. based on project submissions and recommendations from various departments of the Government of Canada. Every effort has been made by the departments involved to ensure the information accurately reflects the projects and initiatives reported.

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For more information about the **Environmental Choice[®] Program**, please visit the ECP website at www.environmentalchoice.com or telephone (613) 247-1900.

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Les procédés d'impression et le papier utilisés à l'intérieur de ce document sont dûment certifiés conformément au seul programme d'éco-étiquetage du Canada – **le programme Choix environnemental[™]** (PCE). Le symbole officiel de certification du programme – l'**Eco-Logo[™]** – évoque trois colombes stylisées entrelacées pour former une feuille d'érable représentant les consommateurs, l'industrie et le gouvernement œuvrant ensemble pour améliorer l'environnement du Canada.

Pour plus d'informations sur le **programme Choix environnemental[™]**, veuillez visiter son site Web à l'adresse **www.environmentalchoice.com** ou téléphonez le programme au (613) 247-1900.

La Division de l'innovation et de la mise en œuvre de la LCPE d'Environnement Canada est fière d'appuyer la norme de performance touchant l'environnement et la qualité et l'emploi de papier certifié dans le cadre du **programme Choix environnemental[™]** et de produits et de procédés respectueux de l'environnement, depuis l'élaboration jusqu'à la distribution de produits d'information. Pour obtenir un exemplaire du catalogue *Environnement Canada : Publications et sites Internet* choisissez, veuillez communiquer avec nous, sans frais, en composant le 1 800 734-3232 ou (819) 953-5750; par télécopieur au (819) 994-5629 ou par courriel à l'adresse **cpspubs@ec.gc.ca**. Pour plus de renseignements sur Environnement Canada, veuillez visiter le site Web du Ministère à **www.ec.gc.ca**.

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Le présent rapport a été préparé par le Centre canadien pour la prévention de la pollution d'après les présentations et les recommandations de différents ministères du Gouvernement du Canada. Les ministères participants ont fait de leur mieux pour s'assurer que l'information fournie reflète le plus exactement possible l'état des projets et des initiatives dont il est question. Dans le présent rapport, toute mention de produit, de procédé ou de service commercial particulier par son appellation commerciale, sa marque de commerce, le nom de son fabricant ou autre ne constitue pas une acception par le Gouvernement du Canada ou par le Centre canadien pour la prévention de la pollution.

Annexe II

Ministères et organismes fédéraux ayant contribué au rapport
Progrès en matière de prévention de la pollution de 1999-2000

Environnement Canada
Affaires indiennes et du Nord Canada
Affaires étrangères et Commerce international
Agence canadienne de développement international
Agriculture et Agroalimentaire Canada
Citoyenneté et Immigration Canada
Défense nationale
Développement économique Canada
Industrie Canada
Parcs Canada
Pêches et Océans Canada
Ressources naturelles Canada
Santé Canada
Statistique Canada
Transports Canada
Travaux publics et Services gouvernementaux Canada

Il est possible de consulter le présent rapport
sur Internet à l'adresse suivante :
www.ec.gc.ca/p2progress

Liste des membres du Comité de coordination sur la prévention de la pollution

1999

Perspectives d'avenir

Le gouvernement fédéral, puisqu'il est l'organisme le plus important du pays, peut influencer véritablement sur les perspectives de développement durable du Canada.

Le développement durable n'est pas une destination qui peut être atteinte par un effort ponctuel. C'est un processus systématique qui nécessite de la planification, des mesures, de l'apprentissage et des améliorations. Les travaux dans les cinq secteurs ciblés par la stratégie fédérale de prévention de la pollution ont pris de l'ampleur et commencent à donner des résultats positifs. Une démarche préventive basée sur l'amélioration continue aidera à concrétiser les objectifs du développement durable. En mettant l'accent davantage sur la démonstration des résultats, les initiatives nouvelles et continues favoriseront l'utilisation de procédés, de pratiques, de matériaux, de produits et d'énergie qui évitent ou minimisent la création de polluants et de déchets.

Le Gouvernement du Canada continuera d'améliorer la base de connaissances et de données scientifiques du pays afin de mieux comprendre les répercussions des substances toxiques et des substances préoccupantes sur la santé humaine et l'environnement. L'accent sera mis sur la santé des populations les plus vulnérables : les enfants et les Autochtones. Une bonne base de connaissances scientifiques viendra appuyer la prévention ou la réduction des menaces pour l'environnement et la santé des Canadiens.

Les travaux s'orienteront vers les provinces et les territoires pour fixer des normes pancanadiennes, en utilisant les données scientifiques et une démarche axée sur le risque, pour les substances prioritaires, dont le mercure, les dioxydes et les furannes, l'ozone, les particules et le benzène. Certains secteurs de compétence ont choisi de consulter davantage l'industrie, les municipalités, les groupes environnementaux, les groupes de santé et les Autochtones pour l'élaboration et la mise en œuvre de ces normes.

L'accès à des connaissances fondamentales, à des outils et à des fonds demeure essentiel pour reconnaître et encourager la capacité des particuliers et des collectivités à adopter et à promouvoir la prévention de la pollution.

Environnement Canada utilisera les nouveaux outils que lui procure la Loi canadienne sur la protection de l'environnement, 1999 (LCPE 1999) pour assurer la protection de l'environnement et de la santé humaine. La Loi souligne l'importance accordée par le Gouvernement du Canada à la prévention des dommages causés à la santé humaine et à l'environnement et son engagement à réaliser le développement durable.

Environnement Canada continuera aussi de travailler avec les autres ministères fédéraux à l'élaboration et à la mise en œuvre de stratégies de prévention de la pollution axées sur des bases scientifiques. Pour encourager cette relation et reconnaître

Pour consulter Prévention de la pollution — une stratégie fédérale de mise en œuvre, visitez : www.ec.gc.ca/pollution/strategy

Les succès réalisés en matière de prévention de la pollution en 1999-2000 laissent le Gouvernement du Canada dans une bonne position pour bénéficier d'un environnement plus fort et plus sain au cours du nouveau millénaire. Le Comité de coordination sur la prévention de la pollution encourage tous les Canadiens à participer activement à l'avancement de la prévention de la pollution. Les ministères fédéraux peuvent faciliter et coordonner les partenariats avec les entreprises, les groupes écologistes, les scientifiques, les communautés autochtones, d'autres ministères et des particuliers. En continuant à travailler ensemble à l'objectif de prévention de la pollution à la source, les Canadiens peuvent protéger l'environnement et la santé humaine et assurer une économie durable aux générations à venir.

Le groupe de travail en sciences et en technologie industrielles de l'Organisation de coopération économique Asie-Pacifique (APEC) met l'accent sur les initiatives d'action volontaire de l'industrie et les perspectives commerciales axées sur le marché ayant un lien avec l'environnement. En tant que participant canadien au groupe de travail, le Conseil national de recherches assure le leadership technique et la gestion de projet dans le domaine des procédés de production plus propre, visant à établir des projets coopératifs de recherche et de démonstration. Le ministère des Affaires étrangères et du Commerce international fournit des conseils sur des questions stratégiques. En 1999, un atelier sur les techniques de production propre a eu lieu à Taipei, en Chine. Des projets pilotes ont été conçus pour des travaux de recherche sur l'énergie solaire en Thaïlande et en Indonésie et pour la mise au point de réseaux Internet pour l'application de pratiques exemplaires.

Devant l'expansion urbaine sans précédent que connaît l'Asie, l'Agence canadienne de développement international, par l'entremise du Consortium universitaire canadien, a collaboré avec l'Institut asiatique de technologie (AIT) à la conception et à la mise au point d'un programme d'études supérieures en gestion de l'environnement urbain à l'AIT. Le but de ce partenariat est d'améliorer les compétences en gestion de l'environnement des praticiens, des universitaires et des chercheurs par des initiatives comme les projets de démonstration. Les exemples de ces projets comprennent la

mise en œuvre et la démonstration de techniques de production propre pour les hôtels de Thaïlande et l'intégration de la gestion environnementale urbaine à Yala, en Thaïlande. Le projet d'environnement Vietnam-Canada est un projet de renforcement institutionnel, financé par l'Agence canadienne de développement international, qui cible les organismes de gestion environnementale au Vietnam. Un guide de prévention de la pollution a été mis au point pour permettre à l'Agence nationale de l'environnement et au ministère des Sciences, de la Technologie et de l'Environnement de normaliser les méthodes d'application des programmes de prévention de la pollution. Cette démarche a été pilotée par cinq usines : une entreprise de textile, une tannerie, une brasserie, une confiserie et une usine de production de cadres d'aluminium.

LE PROTOCOLE DE KYOTO

Le Canada a tenu une position importante lors des négociations internationales, dans le cadre de la conférence de Kyoto, en vue de parvenir à la conclusion d'un accord international engageant. À cette fin, le Canada a participé à la 5^e Conférence des Parties au Protocole, en Allemagne, en octobre 1999, et le ministère des Affaires étrangères et du Commerce international a fourni de l'aide aux entreprises canadiennes pour l'utilisation des mécanismes pour un développement propre et de l'application conjointe en vertu du Protocole. L'objectif de réduction du Canada est de 6 % de moins que les niveaux de 1990 d'ici 2008 à 2012.



AGENCE CANADIENNE DE DÉVELOPPEMENT INTERNATIONAL

L'Agence canadienne de développement international continue à travailler avec diligence à faire progresser la prévention de la pollution à l'échelle internationale. On trouvera ci-dessous certains des projets de prévention de la pollution en cours et les progrès réalisés en 1999-2000. Ces projets ont été mis en œuvre en collaboration avec le secteur privé et un certain nombre d'autres ministères fédéraux.

Projet ARPFL (Amérique centrale)

L'Environmental Services Association de l'Alberta travaille avec l'association des entreprises pétrolières et gazières publiques d'Amérique latine (ARPFL) afin d'aider ses membres à élaborer et à mettre en œuvre des plans, des programmes et des lignes directrices pour la protection et la gestion de l'environnement. Pendant l'exercice 1999-2000, huit lignes directrices, cinq ateliers régionaux, trois ateliers de simulation, 11 rapports techniques et deux activités d'aide technique directe ont pu être réalisées.

Projet de coopération Chine-Canada pour une production propre

Ce projet de cinq ans, entrepris en 1996, aide la Chine à mettre en œuvre une production propre dans cinq secteurs prioritaires. À la Fuyang Chemical General Works, des solutions de production propre ont généré des économies annuelles d'environ un million de dollars grâce à des activités comme la récupération de 4 700 tonnes par année d'ammoniac, 550 tonnes par année de soufre et 1 400 tonnes par année d'hydrogène en équivalents d'ammoniac, ainsi que la réduction de la consommation d'eau de l'ordre de 37 000 tonnes par année. À l'usine de papier d'Anhui, la mise en œuvre de 11 solutions à coût minime a produit des économies d'environ 700 000 \$ par année et comprend des avantages comme la réduction de la demande chimique en oxygène, la récupération de la soude et la réduction de la consommation d'énergie et d'eau. Pour plus de renseignements, consultez : www.chinacp.com (anglais seulement).

FCOGED (Afrique)

Le but du projet pilote et de la formation en environnement du Front commun québécois pour une gestion écologique des déchets (FCQGED) est d'accroître la sensibilisation des intervenants du secteur du textile aux nouvelles mesures de prévention de la pollution et de mettre en œuvre des projets pilotes utilisant ces mesures dans un certain nombre d'entreprises de l'industrie textile en Tunisie. En 1999-2000, 30 personnes ont assisté à un atelier donné par le Québec sur la prévention de la pollution dans le secteur du textile.

les oxydes d'azote et les composés organiques volatils) qui contribuent aux pluies acides et à l'ozone troposphérique.

Sous la direction de l'Agence canadienne de développement international, Ressources naturelles Canada et des experts-conseils ont entrepris des travaux avec l'association russe des zones de démonstration de l'efficacité énergétique. Ce projet, entrepris en janvier 2000, aidera les municipalités russes participantes à acquérir la capacité de mettre en œuvre des politiques et des programmes d'efficacité énergétique. En outre, il permettra de mettre en application des technologies et une capacité environnementales et énergétiques canadiennes sur le marché russe. Le résultat escompté est la réduction des émissions de gaz à effet de serre grâce à une utilisation plus efficace des ressources énergétiques.

L'Amérique du Nord, l'Amérique centrale et l'Amérique du Sud
Au Guatemala, l'Agence canadienne de développement international a financé le projet communautaire d'utilisation de machines à pédales. Son objectif est de mettre au point des techniques de production et de transformation des aliments autosuffisantes, à petite échelle, dans les collectivités rurales. Les partenaires locaux ont travaillé avec des collectivités mayas indigènes rurales (Cakchiquel, Quiché, Mam) pour évaluer leurs besoins et fournir des machines à pédales (bicimachinas). Il y a deux sortes de machines : des pompes à pédales, permettant de retirer l'eau facilement et rapidement des puits, et des moulin à pédales pour moudre le café, le maïs et d'autres céréales. En 1999-2000, 74 machines à pédales ont été assemblées et fournies

à des groupes communautaires locaux, et 45 microprojets, y compris des prêts, étaient en cours.

À la Havane (Cuba), le *Bicicletas Cruzando Fronteras* (bicyclettes hors frontières) a créé des ateliers coopératifs autonomes de réparation de bicyclettes, exploités principalement par des femmes, pour distribuer des bicyclettes aux personnes dans le besoin et pour louer et réparer des bicyclettes. Le projet est financé par l'Agence canadienne de développement international par l'entremise de Hermandad Multiusa de Bicietas (Bureau de l'histoire, Ancienne Havane). Ce projet contribuera à réduire les émissions de dioxyde de carbone et à faire de l'Ancienne Havane une ville sans voiture. À l'heure actuelle, seulement 10 % des habitants de l'Ancienne Havane ont des bicyclettes. L'objectif du projet est de faire en sorte que deux ateliers de réparation de bicyclettes de pointe emploient approximativement 30 personnes pouvant réparer environ 3 200 bicyclettes par année.

L'Asie et l'Afrique

Le projet Chine-Canada de gestion appliquée et d'environnement pour les PME (petites et moyennes entreprises) de Jiangsu a fourni une aide à la gestion et à l'amélioration de la capacité de planification environnementale et d'affaires aux entreprises des villages et des cantons de la province de Jiangsu, en Chine. Plusieurs organismes du gouvernement provincial ont participé à ce projet de 12 millions de dollars, parrainé par l'administration de la province de Jiangsu et l'Agence canadienne de développement international. Le projet visait à sensibiliser les entreprises à la réduction des déchets, à une production plus propre et à l'utilisation de technologies de remplacement favorables à l'environnement, par la démonstration et des projets pilotes, ainsi que par des programmes de formation. Pour plus de renseignements, consultez : ffti.org/smeep/ (anglais seulement).

Progrès réalisés avec la communauté internationale

Les ententes internationales, la coopération scientifique et le transfert technologique sont les moyens dont se sert le Canada pour collaborer avec la communauté internationale afin d'assurer son leadership et de soutenir la promotion de la prévention de la pollution.

Les accords internationaux et le transfert de technologies

Dans le cadre du Fonds d'action pour le changement climatique, les Mesures d'action précoces en matière de technologie (TEAM) ont apporté un soutien financier aux démonstrations internationales de technologies pour l'adaptation aux changements climatiques. Industrie Canada et Partenariat technologique Canada, par leur participation à TEAM, ont parrainé un projet lié aux changements climatiques en 1999-2000.

L'année 1999 a marqué le 25^e anniversaire

de l'Accord relatif à la qualité de l'eau dans les Grands Lacs, conclu par le Canada et les États-Unis. Ces 25 années ont été jalonnées de travaux pour le rétablissement et la mise en valeur de la qualité de l'eau dans le réseau des Grands Lacs. Les succès environnementaux comprennent la réduction des rejets de nutriments, de substances toxiques persistantes et d'autres contaminants; la baisse des niveaux de substances toxiques persistantes dans les tissus des poissons et de la faune (les BPC, le DDT et le mercure ont diminué chez les poissons et la faune dans une proportion de 90 %); l'amélioration de la qualité de l'eau; l'amélioration de l'état des écosystèmes; mesurée au moyen des espèces indicatrices comme le pygargue à tête blanche, le balbuzard pêcheur et le touladi.

En vue d'atteindre l'un des principaux objectifs de l'Accord relatif à la qualité de l'eau dans les Grands Lacs, le Canada et les États-Unis ont travaillé à éliminer les substances toxiques persistantes dans les lacs. La Stratégie binationale des substances toxiques (SBST) a fixé des objectifs de réduction pour des substances précises entre 1997 et 2006. Sept groupes de travail, constitués pour déterminer des moyens d'éliminer presque entièrement ces substances ont terminé l'étape de la collecte d'information et concentrent maintenant leurs efforts sur la définition de solutions rentables afin d'arriver aux réductions envisagées. Les activités et les

Le Canada et les États-Unis travaillent conjointement pour assurer la qualité de l'eau dans les Grands Lacs et l'état des écosystèmes avoisinants grâce à des initiatives de l'Accord relatif à la qualité de l'eau dans les Grands Lacs.

- un rapport sur les possibilités de réduction des PCDD (dioxines) et des PCDF (furannes);
- des rapports provisoires sur les possibilités de réduction du benzo[a]pyrène (BaP), les possibilités de réduction de l'hexachlorobenzène (HCB), ainsi que sur les sources, les règlements et les solutions relatifs au plomb alkylé;
- les réductions déclarées de BPC – en avril 2000, environ 70 % des déchets à forte teneur en BPC avaient été détruits, par rapport à environ 40 % au printemps 1998, lorsque les travaux à l'appui de la SBST ont commencé.

Les progrès vers la réalisation des objectifs de la stratégie sont décrits à l'adresse suivante : www.epa.gov/gllp/bns (anglais seulement). En décembre 1999, le Canada a signé le Protocole pour réduire l'acidification de l'eutrophisation et l'ozone au niveau du sol avec 23 pays européens et les États-Unis. Le Protocole contient des dispositions permettant de fixer des objectifs pour la réduction des émissions de polluants atmosphériques transfrontaliers (p. ex., le dioxyde de soufre,



L'ABC du changement climatique, les Canadiens à l'œuvre » (le programme ABC) est axé sur les changements climatiques et enseigne aux Canadiens les moyens de réduire les émissions de gaz à effet de serre. Des ateliers ont été donnés dans le milieu de travail, expliquant aux participants des moyens pratiques de réduire les émissions à la maison, sur la route et dans leurs collectivités. Le programme a invité les participants à prendre un engagement écrit et à mesurer leurs résultats avec le temps. Les participants aux premiers ateliers se sont engagés à réduire, en moyenne, les émissions de dioxyde de carbone de deux tonnes par année, chacun. Le gouvernement fédéral, grâce au Fonds d'action pour le changement climatique, finance une partie du programme, de même que 14 sociétés membres du Conseil canadien de l'énergie.

« Operation Burn Clean » encourage les consommateurs canadiens à utiliser des poêles à bois et des foyers à combustion propre pour améliorer la qualité de l'air, la sécurité et l'efficacité de la combustion du bois. L'attestation est fournie par l'Association canadienne de normalisation ou par l'Environmental Protection Agency des États-Unis. Les poêles et les foyers qui utilisent des technologies perfectionnées produisent un feu plus stable et réduisent la pollution, dans certains cas, de 90 % comparativement aux anciens modèles. Ils utilisent aussi 33 % de moins de bois que les modèles classiques, ce qui permet aux consommateurs d'économiser. Les économies de combustible pourraient permettre de compenser l'investissement dans la nouvelle technologie en deux ou trois ans seulement. Le programme est financé par Ressources naturelles Canada et Environnement Canada, avec l'appui de divers partenaires de l'industrie. Pour plus de renseignements, consultez : www.woodheat.org/links/burnclean/burnclean.htm (anglais seulement).

Les vignettes *Earth Tones* constituent une série télévisée qui porte sur les recherches environnementales effectuées à Environnement Canada, Agriculture et Agroalimentaire Canada, Pêches et Océans Canada, Santé Canada et Ressources

naturelles Canada. Quant à la série « Les incontournables du Millénaire », elle passe en revue les travaux et les percées scientifiques passés des chercheurs du gouvernement dont les Canadiens continuent à bénéficier. Les sujets comprennent la lutte intégrée contre les ravageurs, la protection de la faune et de l'habitat et les problèmes de ressources.

Santé Canada a produit un film vidéo instructif sur les risques environnementaux associés à la contamination des eaux souterraines et à la façon de s'assurer que l'alimentation en eau demeure propre. Le vidéo intitulé « www.groundwater.com » a été produit avec 20 partenaires des secteurs public et privé, dont Environnement Canada. Des exemplaires du film vidéo, qui a été présentée à la télévision communautaire, ont été distribués à toutes les municipalités et aux Premières Nations en Colombie-Britannique.

L'accès à l'information
Le Centre canadien d'information sur la prévention de la pollution (CCIPP) est un outil sur Internet qui fournit aux Canadiens les renseignements dont ils ont besoin pour appliquer ou appuyer des mesures de prévention de la pollution. Divers rapports techniques, fiches d'information, guides, bulletins de renseignements, manuels, lois, règlements, documents de formation et réussites environnementales sont mis à la

disposition des visiteurs sur le site du CCIPP. Les nouvelles sections pour 1999-2000 comprennent la P2 pour les jeunes, la foire aux questions et un glossaire. Environnement Canada est chargé de sa conception, de sa tenue et de sa promotion. Consultez le CCIPP à l'adresse suivante : www.ec.gc.ca/ccpic.

La troisième Table ronde du Canada sur la prévention de la pollution, qui portait sur les innovateurs en prévention de la pollution, a eu lieu à Vancouver, en 1999. Plus de 125 participants représentant des entreprises, des experts-conseils, des universités, des organismes gouvernementaux et non gouvernementaux se sont réunis pour étudier les questions de prévention de la pollution et souligner les réalisations canadiennes. L'événement comprenait un atelier sur la planification de la prévention de la pollution fournissant des exemples commerciaux concrets et une visite permettant d'observer les efforts de prévention de la pollution déployés à Tilbury Cement. Environnement Canada a fourni une partie des fonds, tandis que le Centre canadien pour la prévention de la pollution, organisme à but non lucratif, a coordonné l'événement. Pour plus de renseignements, consultez : www.c2ponline.com (anglais seulement).

Santé Canada encourage un mode de vie actif qui est respectueux de l'environnement et qui favorise l'augmentation du niveau d'activité physique chez les enfants à travers des programmes tels que « Aller-retour actif et sécuritaire pour l'école » et « Amener un enfant à l'école ».



Progrès réalisés avec le public canadien

Les Canadiens sont de plus en plus tournés vers l'action pour ce qui est de relever les défis de l'environnement par des initiatives communautaires, et des outils et des réseaux d'information fiables.

LE BON SENS AU VOLANT

Depuis 1997, le programme Eco-Logo, qui vise à encourager les Canadiens à se déplacer de façon plus sûre et plus respectueuse de l'environnement, a conduit à l'élaboration de programmes nationaux et provinciaux de réduction de la consommation de carburant. Le site Web du bon sens au volant offre des services interactifs en ligne comme un guide de consommation de carburant, des profils des véhicules les plus économes et de l'information sur l'étiquette EcoGuide pour les véhicules. Pour plus de renseignements, consultez autosmart.nrcan.gc.ca.

Les activités dirigées par des citoyens
L'environnement Canada, grâce à son initiative Les Eco-collectivités du millénaire, a encouragé des groupes de tout le Canada à se désigner eux-mêmes comme Eco-collectivités du millénaire (ECM) déterminées à améliorer leur environnement local. Pour devenir une ECM, un groupe de personnes intéressées d'une localité géographique ou d'un domaine d'intérêt peut se réunir pour établir des objectifs et élaborer un plan d'action pour l'assainissement de l'air, l'assainissement de l'eau, la nature et les changements climatiques. L'ECM peut inscrire ses objectifs et son plan d'action sur le site Web des ECM. Pour plus de renseignements, consultez : www.ec.gc.ca/eco.

Les campagnes de sensibilisation publique

Le projet « Home Green Lps » est un projet pilote de deux ans entrepris par le Newfoundland and Labrador Conservation Corps. Des éco-équipes dirigées par des jeunes font des vérifications à domicile et, au cours d'entretiens de suivi, montrent aux résidents comment mieux gérer l'énergie, l'eau et les déchets, font la promotion active des moyens de transport écologiques (comme la bicyclette et la marche) et expliquent comment prendre soin des pelouses sans pesticide. Environnement Canada et Développement des ressources humaines Canada, ainsi que le gouvernement provincial et l'industrie, sont des partenaires de ce projet. Jusqu'à maintenant, 1 000 résidences ont été évaluées, l'objectif étant de 3 000 d'ici juin 2001. Une base de données est en préparation pour suivre les changements dans la consommation d'eau et d'énergie, les modernisations effectuées dans le secteur de l'énergie et les changements apportés aux pratiques de gestion des déchets et de soin des pelouses.

Également, Clean Nova Scotia a lancé le programme « Home Tune Lp » dont l'objectif est de réaliser 2 000 évaluations environnementales dans les foyers de la municipalité régionale de Halifax. Les évaluateurs font des recommandations écrites aux différents propriétaires sur les moyens de réduire la consommation d'énergie, la conservation d'eau et la création

PRODUITS ET SERVICES PORTANT L'ÉCO-LOGO
TerraChoice Environmental Services Inc., au nom du gouvernement Canada gère et applique le programme Choix environnemental (CE), programme d'étiquetage écologique qui aide les particuliers, les entreprises et les gouvernements à prendre des décisions d'achat éclairées, afin de réduire les effets de leurs activités sur l'environnement. Plus de 2 800 produits de marque, portent maintenant l'Eco Logo[®] du programme CE, des produits tels que des appareils électroménagers, des produits de nettoyage, des produits électroniques et des peintures. Pour plus de renseignements, consultez : www.environmentalchoice.com/french.



Section 2 : Progrès réalisés avec le secteur privé (suite)

La recherche et le développement

Partenariat technologique Canada (PTC) est dirigé par Industrie Canada. En 1999-2000, PTC a investi 98 millions de dollars dans huit projets de technologie environnementale qui favoriseront l'obtention de 296 millions de dollars de plus d'autres sources. Les exemples des projets financés comprennent : la mise au point d'un autobus hybride mû à l'électricité et au diesel, la mise au point de technologies de turbine à gaz industriel perfectionnées, qui produisent une électricité plus efficace et plus propre, et la mise au point de technologies en circuit fermé qui réduisent la perte de matières premières, augmentent l'efficacité et la productivité des usines et diminuent ou éliminent la production de polluants. Pour plus de renseignements, consultez : tpc.ic.gc.ca.

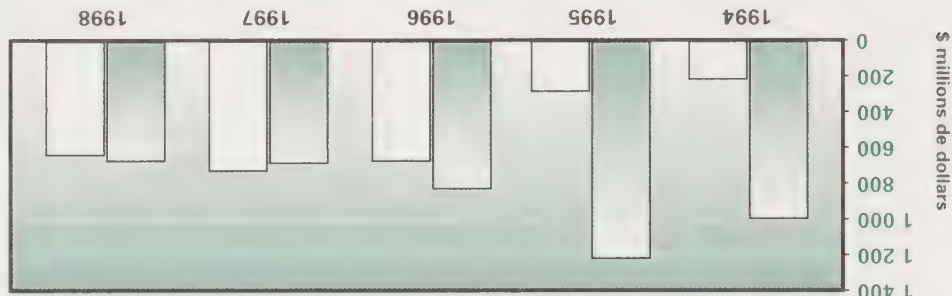
Développement économique Canada, avec l'appui technique d'Environnement Canada, a approuvé huit projets conçus pour évaluer et commercialiser des technologies environnementales, investissant approximativement 8,2 millions de dollars. Les projets ont été réalisés dans le cadre du Programme d'innovation, valorisation de l'entrepreneuriat et d'exportation et de l'Initiative régionale stratégique.

Ressources naturelles Canada (RNC) a coordonné l'Initiative canadienne de recherche sur les matériaux légers, un partenariat du gouvernement et de l'industrie visant à mettre au point des procédés de fabrication et des matériaux pour les véhicules économiques en carburant. L'aspect technique du programme consiste à réduire le poids des moyens de transport au sol – pour chaque réduction de 10 % du poids du véhicule, il y a une

En 1999, Ressources naturelles Canada a collaboré avec Alcan Aluminium Limitée à un projet pilote visant à mettre en œuvre des concepts d'éco-efficacité dans les petites et moyennes entreprises qui fournissent des biens et des services aux grandes entreprises du secteur des ressources naturelles dans la région du Saguenay, au Québec. En intégrant les concepts d'éco-efficacité à leurs procédés d'entreprise, les sociétés réduisent leur consommation d'énergie et de matières premières et diminuent leur production de déchets.

Le Centre d'éco-efficacité de Burnside (Halifax, Nouvelle-Écosse) est un centre à but non lucratif appuyé par une équipe de partenaires publics et privés et parrainé par les administrations fédérale, provinciale et municipale, ainsi que le secteur privé et des établissements d'enseignement. En juin 1999, le centre a lancé le programme de sociétés écologiques, pour encourager les petites et moyennes entreprises à apporter des améliorations éco-efficaces à leurs activités. Le programme vise à sensibiliser les entreprises aux avantages de faire les bons choix environnementaux. Les entreprises inscrites doivent réduire leurs répercussions sur l'environnement, tout en augmentant leur rentabilité. Le centre fournit de l'information et un appui technique et aide les entreprises à fixer et à atteindre leurs objectifs dans les domaines de l'efficacité énergétique, de la conservation de l'eau, de la réduction des déchets solides et de la réduction des risques environnementaux. Quinze entreprises étaient inscrites en juin 1999 et, en janvier 2000, leur nombre était passé à 45. Le personnel d'Environnement Canada siège au comité directeur de cette initiative.

Dépenses d'investissement en prévention et en réduction de la pollution



Sources : Statistique Canada, Division des comptes et de la statistique de l'environnement, *Dépenses de protection de l'environnement du secteur des entreprises*, 1996-1997 (révisé), n° de catalogue 16F00006XII.

Procédés de dépollution avant rejet
Procédés de prévention de la pollution

économie de carburant de 6 à 8 %. En diminuant la consommation de carburant, on réduit le smog urbain, on assainit l'air et on diminue les émissions de dioxyde de carbone. Le programme a commencé en avril 1999 par 11 projets. En plus de RNC, le Conseil national de recherches et cinq universités effectuent des recherches qui sont complétées par les travaux de centres de recherche et développement du secteur privé.

Statistique Canada, par l'entremise de son enquête annuelle sur les dépenses consacrées à la protection de l'environnement, recueille des données sur les dépenses qui sont faites par les secteurs primaire et secondaire de l'industrie, les installations de distribution de gaz et d'électricité, ainsi que les installations de transport par pipeline. Depuis 1995, deuxième année de l'enquête, des entreprises ont régulièrement réduit leur investissement dans les techniques de dépollution avant rejet, tandis que 1998 représentait la première année au cours de laquelle l'investissement en prévention de la pollution diminuait. En 1998, les investissements des entreprises au chapitre de la protection de l'environnement ont diminué légèrement par rapport à l'année précédente, tout en demeurant au-dessus de 1,7 milliard de dollars.

œuvre. Ils visent le remplacement de solvants de dégraissage organiques par des liquides de dégraissage à base d'eau et le remplacement des fusils à base de butanone par des fusils qui ne contiennent pas ce produit.

La formation et la sensibilisation

Le ministère des Ressources naturelles de la

Nouvelle-Écosse, la Nova Scotia Power,

Illuminating Engineering Society of North

America (Iscsi) et le gouvernement

Canada ont regroupé leurs ressources pour pro-

mouvoir l'utilisation d'ampoules peu énergivores

dans les entreprises commerciales. Les entrepre-

neurs et des clients éventuels ont été invités à

dix ateliers au cours desquels étaient exposés

les avantages de ces ampoules. À la suite des

ateliers, au moins une vingtaine d'entreprises

commerciales ont apporté des modifications et

elles sont très satisfaites des résultats sur le

plan de l'éclairage et des économies. Dix

entrepreneurs en éclairage ont participé aux

ateliers et font maintenant régulièrement la

promotion de l'éclairage économique d'énergie à

leurs clients. Au total, 10 000 déplaçants ont été

postés à des entreprises et à des entrepreneurs.

Chaque année, dans la Région de l'Atlantique,

environ 2 500 rapports concernant les urgences

environnementales sont reçus par un réseau de

Canada, qui contient maintenant plus de

10 000 entrées. Les ministères provinciaux de

l'Environnement, Pêches et Océans Canada

et la Garde côtière canadienne jouent un rôle

important dans ce domaine. L'information est

analysée afin de déterminer les tendances des

déversements ou les zones problématiques et est

fréquemment utilisée par l'industrie lorsqu'elle

entreprend des vérifications environnementales.

Cette année, un rapport sera publié pour résumer

le résultat d'années de collecte de données. Il

devrait permettre de cibler les programmes de

prévention à élaborer. La Section des urgences

environnementales d'Environnement Canada

organise et donne des séances de formation et

de sensibilisation destinées à différents auditoires

concernant la prévention des déversements, et y

participe fréquemment.

Les petites et moyennes entreprises

Environnement Canada et le comité d'évaluation

environnementale de la rivière Miramichi ont été

les hôtes d'une séance de sensibilisation au projet

EnviroClubSM à l'intention des entreprises, à

Miramichi (Nouveau Brunswick). Le concept

d'EnviroClubSM repose sur un projet pilote

fructueux qui a été entrepris au Québec, ciblant les petites et moyennes entreprises. Les présentations visaient à montrer aux entreprises que l'adoption de démarches de prévention de la pollution pouvait les aider à améliorer leur rendement environnemental, ce qui était susceptible d'avoir de nouveaux avantages sur le plan de l'efficacité et de la compétitivité. À la suite de l'atelier, 20 entreprises ont manifesté leur intérêt de participer à EnviroClubSM. Le comité a aussi travaillé avec plusieurs petites et moyennes entreprises à élaborer des plans de gestion environnementale. Les plans comprennent des mesures de prévention de la pollution, des pratiques de traitement et de recyclage.

Encouragé par le succès du projet pilote initial

EnviroClubSM, au Québec, Environnement

Canada, en partenariat avec Développement

économique Canada, a entrepris un projet de

recrutement en vue de lancer deux autres projets

dans la province. Son objectif est de regrouper

24 petites et moyennes entreprises du secteur

manufacturier pour participer à des ateliers et

entreprendre des projets de prévention de la

pollution dans leurs installations.

PROGRAMME D'ENCOURAGEMENT AUX SYSTÈMES D'ÉNERGIE RENOUVELABLE

Le programme d'encouragement aux systèmes d'énergie renouvelable (PENSER) est un programme fédéral qui vise à encourager l'adoption de technologies d'énergie renouvelable dans le secteur privé.

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ECO-EFFICACITÉ

L'éco-efficacité est atteinte

lorsque des produits et des

services à prix compétitifs

qui satisfont les besoins

humains et apportent une

qualité de vie, tout en réduisant

progrèsivement les incidences

écologiques et l'intensité

des ressources pendant le

cycle de vie sont fournis,

au moins à un niveau

conforme à la capacité

estimée de la Terre.

(World Business Council for

Sustainable Development)



Grâce au projet de partenariat pour la prévention de la pollution de la Division du Manitoba de l'Alliance des manufacturiers et des exportateurs du Canada, une série de projets pilotes et de cours de formation ont été entrepris dans le secteur du traitement de surface des métaux du Manitoba. Environnement Canada est membre du groupe de travail sur le traitement de surface des métaux (coprésidé par Bristol Aerospace et Standard Aero). En 1999-2000, trois vérifications de la prévention de la pollution ont été entreprises et six cours de formation en gestion des produits chimiques ont été dispensés aux installations membres. Ce projet aidera les finisseurs de traitement de surface des métaux à réduire leur usage de substances toxiques et d'autres substances préoccupantes et à améliorer leur rendement environnemental global.



L'industrie de l'imprimerie s'est associée à des organismes fédéraux afin d'élaborer, par le biais d'initiatives régionales, des programmes sectoriels de gestion de l'environnement basés sur les principes de prévention de la pollution.

L'exploitation minière

Ressources naturelles Canada a travaillé avec l'industrie dans le cadre du Programme de neutralisation des eaux d'exhaure dans l'environnement minier de 2000 (NEDEM 2000). Ce programme vise à mettre au point des technologies de prévention ou de réduction de l'exhaure acide au cours d'une période de trois ans se terminant en 2000. Une technologie en circuit fermé a été mise au point pour empêcher l'évacuation des eaux d'exhaure acide grâce à l'utilisation d'une combinaison de couches de sol naturel et de matières organiques qui servent de couverture sèche aux résidus miniers. Pour plus de renseignements, consultez : mend2000.nrcan.gc.ca.

Le Programme de stériles et de résidus miniers a permis à l'industrie minière du Canada d'acquiescer des connaissances techniques et spécialisées en gestion des déchets miniers solides. Ressources naturelles Canada a transmis des connais-

sances techniques sur des possibilités de gestion à long terme des déchets miniers grâce à la mise au point de techniques de prévention des contaminants et de technologies d'élimination. Comme exemple de technique de prévention des contaminants, mentionnons l'utilisation de couvertures aqueuses pour le stockage et l'élimination des résidus miniers. La couverture aqueuse empêche la production d'acides et la mobilisation subséquente des métaux des résidus miniers.

Les moteurs récréatifs, utilitaires et hors route

Janvier 2000 a marqué la signature d'un protocole d'entente entre Environnement Canada et l'Association canadienne des manufacturiers de produits nautiques (ACMPN). Grâce à l'adoption de la nouvelle Loi canadienne sur la protection de l'environnement, le Gouvernement du Canada a maintenant le pouvoir de réglementer les émissions des moteurs hors route. Le protocole d'entente est un accord volontaire entre Environnement Canada, les fabricants de moteurs d'embarcation récréatives et l'ACMPN qui vise à accélérer l'adoption de moteurs plus propres au Canada.

L'accord touche les moteurs hors-bord et les moteurs d'embarcations personnelles. Les fabricants de moteurs se sont volontairement engagés à fournir des moteurs plus propres au Canada à compter de l'année modèle 2001.

L'industrie de l'imprimerie et du graphisme

L'industrie de l'imprimerie, à la grandeur du Canada, s'est associée à des organismes gouvernementaux, dont les bureaux régionaux d'Environnement Canada, afin d'élaborer des programmes sectoriels de gestion de l'environnement basés sur les principes de prévention de la pollution. Les activités dans tout le pays comprennent le projet d'imprimerie écologique dans l'Atlantique, CleanPrint Ontario, le B.C. Printing Project, le Manitoba Green Printing Project et une initiative de l'Association des arts graphiques du Québec. Certaines régions ont organisé des ateliers, tandis que d'autres ont rédigé des guides de systèmes de gestion de l'environnement sur les pratiques exemplaires. Les programmes aident les imprimeurs à réduire ou à éliminer les

Le tourisme

Le projet d'éco-efficacité des terrains de golf est réalisé en partenariat entre GreenLinks Eco-Efficiency Services, Burnside Golf Services et Environnement Canada en vue de promouvoir la prévention de la pollution et d'autres initiatives de gestion de l'environnement sur 28 terrains de golf de l'Ontario. L'objectif est de réduire l'utilisation des produits chimiques et d'améliorer la qualité générale de l'environnement sur les terrains de golf. En outre, Environnement Canada a élaboré des lignes directrices définissant des pratiques exemplaires et des principes de prévention de la pollution pour la conception, l'aménagement, l'exploitation et l'entretien des terrains de golf.

Les transports

Grâce à une entente de financement, Environnement Canada a contribué à définir les priorités de prévention de la pollution pour le Centre technique d'Air Canada à l'Aéroport international de Dorval, à Montréal (Québec). Des projets prioritaires ont été définis et seront mis en œuvre au cours du prochain exercice. Ils comprennent notamment le nettoyage et le dégraissage des pièces d'avion et la mise au point d'un logiciel informatique pour aider Air Canada à gérer ses déchets dangereux.

En 1999-2000, Environnement Canada et la Commission de transport régionale d'Ottawa-Carleton ont conclu une entente de partenariat pour la mise en œuvre d'un certain nombre de projets de prévention de la pollution visant à éliminer ou à réduire l'utilisation de produits contenant des substances chimiques dangereuses dans l'un des ateliers d'entretien de la Commission. Après examen des activités actuelles et consultation d'OC Transpo, six projets ont été définis et choisis pour les mettre en

Bretton Regional Hospital. Le projet comprenait un certain nombre d'initiatives visant à réduire les répercussions des activités de l'hôpital. Au nombre des résultats, on constate une réduction de 10 % de la consommation d'énergie; une réduction de 15 % des déchets liquides et une réduction de 60 % des émissions atmosphériques.



Pêches et Océans Canada élaborera des plans de gestion environnementale pour tous les ports pour petits bateaux d'ici 2002.

Les marinas et les ports

Pêches et Océans Canada se penche sur les répercussions environnementales des activités dans les ports où la pêche est pratiquée. En 1999-2000, le Ministère a élaboré et mis en œuvre des plans de gestion environnementale pour 347 des 559 ports pour petits bateaux – une hausse de 18 % par rapport à l'exercice précédent. L'objectif du Ministère est de mettre en place des plans pour tous les ports pour petits bateaux d'ici 2002.

L'industrie du traitement de surface des métaux

Le projet de prévention de la pollution de l'industrie du traitement de surface des métaux de l'Ontario est un partenariat entre l'industrie du traitement de surface des métaux, ses associations et les gouvernements fédéral et provincial. Le projet favorise l'élaboration et la mise en œuvre de plans de prévention de la pollution pour des installations particulières par les sociétés membres de la Canadian Association of Metal Finishers et de l'American Electroplaters and Surface Finishers Society. Le sixième rapport d'étape du groupe de travail a été publié en septembre 1999; il faisait état des progrès réalisés concernant l'utilisation des substances et la réduction des déchets. Vingt-six entreprises de traitement de surface des métaux ont participé au projet qui compte 32 études de cas documentées, soit quatre de plus que pour l'exercice précédent. Le projet a permis de réduire et d'éliminer l'utilisation de près de 2,58 millions de kilogrammes de polluants et la consommation de plus de 75 millions de litres d'eau par année. Pour une économie totale de 750 000 \$ au cours de l'année. Quatre-vingt-quatorze employés de 35 organisations ont terminé leur formation en planification de la prévention de la pollution.

LES SOLUTIONS

ENVIRONNEMENTALES

Pour connaître la capacité de prévention de la pollution des meilleures entreprises de service et de technologie du Canada, visitez Solutions de service et de technologie

(SEC), à strategies.ic.gc.ca/SEC.

Conçu par Industrie Canada,

SEC traite des problèmes environnementaux liés à l'eau,

à l'air, au sol, à l'énergie, ainsi que des travaux de recherche et développement. C'est un lien direct vers les solutions et les entreprises canadiennes qui peuvent les fournir. SEC est efficace parce qu'il est exhaustif – il décrit environ 2 000 problèmes et solutions dans le domaine de l'environnement, ainsi que plus de 850 sociétés qui fournissent ces solutions!

Le nettoyage à sec

L'environnement Canada a financé l'établissement d'une infrastructure visant à fournir une trousses de formation en matière d'environnement aux nettoyeurs à sec de la Colombie-Britannique. Un programme obligatoire de formation et de reconnaissance professionnelle dirigé par l'industrie a été recommandé pour assurer un niveau élevé de conformité à des normes uniformes, tout en fournissant des avantages intégrés aux nettoyeurs à sec. L'établissement de cette infrastructure se poursuivra en 2000-2001. Ces mesures font partie d'une initiative plus large d'Environnement Canada visant à réduire l'utilisation du perchloroéthylène pour le nettoyage à sec de 5 500 tonnes (estimation de 1994) à 1 600 tonnes par année.

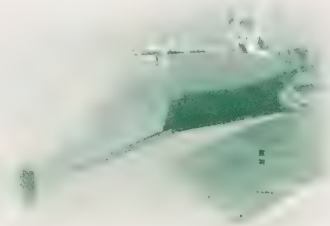
Le projet de démonstration de nettoyage par voie humide d'Environnement Canada a recours à une technologie japonaise afin de diminuer l'usage de détergents pour le nettoyage par voie humide. Traditionnellement, cette technique servait à remplacer le nettoyage à sec, qui emploie le perchloroéthylène toxique. Pourtant, elle produit une autre sorte de problème de pollution – les détergents sont une source de phénol et de demande biologique en oxygène. L'objectif du projet est de réduire l'utilisation des détergents de 40 % dans les installations de démonstration de *Our Cleaners*, à Bartie (Ontario). Ce projet produira des réductions de consommation d'eau et d'énergie tout en augmentant le volume de vêtements nettoyés.

Les soins de santé

Un programme d'écologisation (*Operation Green: An Instrument for Change*) a été entrepris dans le cadre d'un projet conjoint réalisé par le Programme d'assainissement du littoral atlantique (Cap-Breton). Environnement Canada et le Cape



l'aquaculture durable sur le plan environ-
nemental en Ontario. Les efforts déployés
jusqu'à maintenant ont porté sur les activités
d'élevage en cage, y compris l'établissement
d'une moule moins polluante pour la truite
arc-en-ciel d'élevage et les essais de systèmes
de collecte des déchets de poissons.



Dans le cadre d'un programme de gestion du fumier
respectueux de l'environnement, l'Ontario travaillait con-
jointement à la réduction des versements de fumier.

produits détaillant les progrès réalisés par 28
installations participantes, incluant 114
études de cas. En 1999-2000, on a établi
que le projet avait permis de réduire ou
d'éliminer jusqu'à 6 759 tonnes de produits
toxiques désignés et plus de 332 000 tonnes
d'autres substances préoccupantes depuis
le début du projet. Trois ateliers à l'intention
des fournisseurs ont été organisés pour pro-
mouvoir la prévention de la pollution chez
les fournisseurs de pièces d'automobile.

Le projet de partenariat pour la prévention
de la pollution de la Division du Manitoba
de l'Alliance des manufacturiers et des
exportateurs du Canada aide le secteur
du débosselage et des réparations de
carrosseries d'automobile à réduire son
utilisation de produits toxiques et à abaisser
le niveau de composés organiques volatils
rejetés. L'Alliance, Environnement Canada
et l'organisme de conservation du Manitoba
travaillent ensemble au soutien de ce
projet. L'Ontario Autobody Profitability
Manual/Workbook a été révisé de façon
à tenir compte des activités du secteur
du Manitoba et a été utilisé par les 85
entreprises membres qui ont assisté à
l'atelier et à la foire commerciale sur la
rentabilité de la réparation de carrosseries
d'automobile au Manitoba.

Les produits chimiques

Les principaux éléments d'un protocole
d'entente ont été négociés par l'Association
canadienne des fabricants de produits
chimiques (ACFCP), les provinces de
l'Ontario et de l'Alberta et les ministères
fédéraux de l'Environnement, de l'Industrie
et de la Santé. L'objectif du nouveau protocole
est de prévenir et de réduire les rejets de
substances chimiques en vertu du pro-
gramme Gestion responsable^{md} de l'ACFCP.
On s'attend à réaliser, pendant la durée du
protocole (jusqu'en 2002), des réductions
des émissions de composés organiques
volatils d'environ 58 % par rapport au
niveau de référence de 1992 et de 25 % par
rapport au niveau de référence de 1997,
grâce à la prévention de la pollution à
l'échelle nationale.

La construction

Ressources naturelles Canada et Environ-
nement Canada, en partenariat avec le
District régional du Grand Vancouver,

Industrie Canada et d'autres partenaires,

ont encouragé l'utilisation de béton
« écologique » pour les grands projets de
construction de Vancouver. Grâce à ce
béton, au moins 40 % du ciment Portland
antérieurement utilisé est remplacé par
des cendres volantes. En effet, les cendres
volantes sont des sous-produits des centrales
au charbon habituellement destinés à la
décharge. Non seulement cette utilisation
permet de récupérer les cendres volantes,
mais en outre, le remplacement d'une tonne
de ciment par une tonne de cendres volantes
réduit les émissions industrielles de dioxyde
de carbone d'environ une tonne.

Le 31 mars 2000, Travaux publics et
Services gouvernementaux Canada a
intégré les exigences de réduction des
déchets de construction, de rénovation
et de démolition à ses normes de projets.
Au cours de l'année 1999-2000, des mesures
de réduction des déchets ont été mises en
œuvre dans le cadre d'au moins quatre
projets. Le Ministère, en collaboration avec
l'Association canadienne de la construction,
a aussi établi et diffusé des pratiques exem-
plaires à l'intention de l'industrie de la con-
struction pour la gestion des déchets solides.

L'Office national de l'énergie, Transports
Canada, Environnement Canada, Pêches
et Océans Canada et les organismes provin-
ciaux de l'environnement ont collaboré
à l'élaboration et à l'application de normes
plus sévères pour la conception et la
construction des pipelines, des routes et
d'autres activités susceptibles de perturber
les matières acidiogènes naturellement
présentes dans l'environnement. Matilimes
and Northeast Pipeline a construit un
gazoduc de plus de 1 400 km au Nouveau-
Brunswick et en Nouvelle-Écosse qui
respecte les normes sévères de conception
et de construction. Cette méthode a permis
d'éviter les lixiviats acides et le rejet connexe
de métaux en concentrations toxiques dans
les sols. On s'attend à ce que ces normes
soient utilisées également pour les systèmes
de distribution.

Le programme EnerGuide pour les maisons,
élaboré par Ressources naturelles Canada,
est un service qui fournit aux consommateurs
des conseils de sources différentes sur la
consommation d'énergie d'une maison et les

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Parcs Canada a soutenu activement le plan de gestion communautaire de l'énergie de la ville de Banff. Le plan contenait de l'information à propos de la consommation d'énergie et a aidé les décideurs à choisir les programmes et les politiques les mieux appropriés à la réduction de la consommation et des dépenses en matière d'énergie. La mise en œuvre du plan entraînera une diminution de 7 % des dépenses d'énergie des ménages et une réduction, par personne, des émissions de dioxyde de carbone de 20 % par rapport aux niveaux de 1998, d'ici 2010. Parcs Canada, la Fédération canadienne des municipalités et Ressources naturelles Canada ont financé ce projet.

Environnement Canada participe, avec la ville de Surrey, en Colombie-Britannique, à un projet pilote visant à réduire la pollution créée par l'aménagement des zones d'habitation. Environnement Canada et de nombreux participants fédéraux et provinciaux font partie du comité consultatif du projet. La phase I, qui consiste à élaborer un plan d'aménagement des quartiers, est maintenant terminée. L'aménagement proposé réduira la pollution grâce à la construction efficace des rues sur le plan des ressources et de l'énergie, prévoyant l'emplacement des services commerciaux et des transports en commun à cinq ou six minutes de marche. Il est possible de consulter le projet sur Internet à l'adresse suivante : www.sustainablecommunities.agsci.ubc.ca/projects/Headwaters.html (anglais seulement).

L'Accord Canada-Ontario sur l'écosystème du bassin des Grands Lacs (ACO) coordonne les mesures fédérales et provinciales en réponse aux engagements du Canada en vertu de l'Accord Canada-Etats-Unis relatif à la qualité de l'eau dans les Grands Lacs. En vertu de l'ACO, le Programme Grands Lacs 2000 a apporté des améliorations importantes à l'écosystème du bassin des Grands Lacs grâce aux efforts coopératifs de sept ministères fédéraux et de quatre ministères provinciaux. Dans l'ensemble, une réduction de 71 % de l'utilisation, de la production ou du rejet de substances de la voie 1 (benz[a]pyrène, hexachlorobenzène, plomb alkyle, mercure, octachlorostyrène,

dioxines et furanes) a pu être réalisée. Le Canada et l'Ontario maintiennent leur engagement vis-à-vis du rétablissement, de la protection et de la conservation de l'écosystème du bassin des Grands Lacs et continueront de travailler de concert avec les intervenants du bassin. Dans le cadre du Programme Transports Halifax (TRAX), des moyens de transport différents ont été encouragés et mis en œuvre dans la municipalité régionale de Halifax. Le but du programme est de réduire les émissions de gaz à effet de serre causées par les véhicules à un seul occupant. Le programme de réduction des déplacements de ce projet a été mis en œuvre en collaboration avec trois organismes, dont Environnement Canada. Le site Web de TRAX (www.trax.ns.ca – anglais seulement) comprend un formulaire de participation pour le covoiturage.

Dans le cadre de l'examen national continu des rejets d'eaux usées, un atelier sur les eaux usées a été organisé, à l'intention des collectivités côtières, sous les auspices du Programme Atlantique Coastal Action. Avec l'aide d'Environnement Canada, en octobre 1999, plus de 150 participants, y compris des gestionnaires municipaux, des groupes d'intérêts de 17 localités du Canada atlantique et des représentants de ministères fédéraux et provinciaux, se sont réunis à Lunenburg (Nouvelle-Écosse). Lunenburg est un site du patrimoine mondial des Nations Unies (UNESCO), mais ne traite pas ses eaux usées. Les entrepreneurs ont porté sur la meilleure façon de gérer les rejets d'eaux usées, par des mesures comme la réduction à la source et les stimulants économiques.

Les mesures pour contrer les changements climatiques

Sous la direction du Secrétaire national des changements climatiques, le Canada a poursuivi ses efforts en vue de respecter les engagements pris dans le cadre du Protocole de Kyoto sur les changements climatiques. En mars 2000, 17 rapports étaient terminés, décrivant les efforts de 16 tables de concertation. Ces rapports, et les recommandations qu'ils contiennent, seront pris en compte au moment de la

formulation d'une stratégie nationale sur les changements climatiques. La stratégie sera basée sur cinq domaines prioritaires : améliorer la sensibilisation et la compréhension; promouvoir la mise au point des technologies et l'innovation technologique; investir dans les connaissances / établir les fondements; diriger par l'exemple; et encourager la prise de mesures par tous les Canadiens dans tous les secteurs de l'économie.

Le CME accorde annuellement une reconnaissance nationale aux entreprises et aux organisations qui font preuve d'innovation ou de leadership dans le domaine de la prévention de la pollution.

Les municipalités sont d'importants partenaires dans leurs tentatives pour réduire les émissions de gaz à effet de serre et améliorer la qualité de l'air et de l'eau. Le Gouvernement du Canada fournit aux municipalités 125 millions de dollars pour ces efforts pendant la période de 1999 à 2003, au moyen de deux fonds. Le Fonds d'habilitation municipal vert est un fonds quinquennal qui fournit des subventions pour le partage des coûts des vérifications de l'efficacité énergétique et des études de faisabilité de projets conçus afin de réduire les émissions de gaz à effet de serre, d'améliorer la qualité de l'air et de l'eau et d'encourager l'utilisation durable des ressources renouvelables et non renouvelables. Le Fonds d'investissement municipal vert offre des prêts pour permettre aux bénéficiaires de réaliser des projets de réduction de la consommation d'énergie, comme la modernisation des bâtiments et des systèmes de transport en commun.

Progrès réalisés avec d'autres gouvernements

Tous les niveaux d'administration publique au Canada travaillent en étroite collaboration afin de s'assurer que la protection de l'environnement est une priorité continue.

Les partenaires provinciaux, territoriaux et municipaux

Au lancement de l'Initiative de l'écosystème du bassin géorgien sur la côte ouest, en 1998, les ministères fédéral et provincial de l'Environnement ont fixé des objectifs pour les plans d'action, visant à assainir l'air et l'eau ainsi qu'à conserver et à protéger les espèces et leur habitat. En janvier 2000, Environnement Canada et la US Environmental Protection Agency ont signé une Déclaration conjointe de coopération pour l'écosystème du bassin géorgien et de Puget Sound. Les enjeux d'intérêt commun comprennent la qualité de l'air, la pollution ponctuelle et diffuse des eaux de surface et la réduction des produits chimiques toxiques. Actuellement, les partenaires de l'Initiative du bassin géorgien travaillent en coopération à établir des indicateurs qui permettront de mesurer les progrès vers la durabilité dans la région.

Les partenaires nationaux

Dans le cadre du mandat du Conseil canadien des ministres de l'Environnement (CCME), les organismes fédéraux provinciaux et territoriaux établissent des normes pancanadiennes pour les substances d'intérêt prioritaire, dont le mercure, les dioxines et les furanes, l'ozone et les particules, les hydrocarbures pétroliers et le benzène. La prévention de la pollution est le principe directeur de la mise en application de ces normes. Chaque norme comprend des objectifs numériques et des échéances. Les secteurs de compétence doivent préparer des plans d'action leur permettant de respecter chacune des normes. En novembre 1999, des normes pancanadiennes pour les fines particules, l'ozone troposphérique, le benzène (phase I) et le mercure produit par l'incinération et les fondries de métaux ont été présentées aux ministres. Entre l'automne 1999 et le printemps 2000, les ministres ont demandé l'autorisation de signer officiellement ces accords.

PRIX DU CCME POUR LA PRÉVENTION DE LA POLLUTION DE 1999

Le Conseil canadien des ministres de l'Environnement (CCME) accorde une reconnaissance nationale aux entreprises et aux organisations qui font preuve d'innovation ou de leadership dans le domaine de la prévention de la pollution. Les prix du CCME pour la prévention de la pollution de 1999 ont été remis aux entreprises suivantes :

Westport Innovations Inc., de Vancouver, en Colombie-Britannique, pour avoir mis en marche une nouvelle technologie, nommée injection directe sous forte pression, qui permet aux moteurs diesel de fonctionner avec du gaz naturel. La technologie réduit les émissions de suie, d'oxydes d'azote et d'azote.

Marconi Communications Inc., de St. Thomas, en Ontario, pour la mise au point de nouveaux procédés de peinture et de soudure sans composés organiques volatils (COV), substances qui entraînent la formation de smog.

Transcontinental Printing RBW Graphics, d'Owen Sound, en Ontario, pour ses initiatives de prévention de la pollution. Son système de récupération d'énergie a permis de réduire l'utilisation d'électricité de 31 %. L'entreprise a aussi diminué ses émissions de COV et cesse d'emettre des oxydes d'azote et des sulfates tout en augmentant sa production de plus de 72 % au cours des trois dernières années.

L'Association canadienne des piles domestiques et la Rechargeable Battery Recycling Corporation pour leurs efforts visant à éliminer le mercure dans la fabrication des piles, et le lancement d'une campagne de recyclage des piles qui a porté ses fruits. Ces efforts ont réduit la quantité de mercure de ces sources qui entre dans le flux des déchets solides du Canada de quatre tonnes en 1991 à des quantités presque nulles actuellement.

Pour plus de détails sur le CCME et ses prix, consultez le site Web du CCME à www.ccme.ca



Section 2 : Progrès réalisés au sein du gouvernement fédéral (suite)

Environnement Canada, en collaboration avec le Service correctionnel du Canada, a désigné l'établissement de Warkworth, à Campbellford (Ontario), comme lieu de démonstration de la prévention de la pollution. L'objectif de cette initiative est de montrer que les principes de prévention de la pollution peuvent être intégrés sans difficulté aux activités quotidiennes de l'établissement. Six projets ont été mis en œuvre et sont présentement sous surveillance. Les résultats de ces projets seront communiqués aux autres établissements correctionnels.

La gestion du parc automobile

Le programme de gestion du parc automobile de Ressources naturelles Canada a permis de réaliser une réduction de 38 % de l'ensemble du parc depuis avril 1995. La taille du parc est passée à 268 véhicules, alors qu'elle était à l'origine de 700. Le nombre de véhicules pouvant utiliser des carburants de remplacement se chiffre maintenant à 89.

Transports Canada a aidé à réduire les dégagements de gaz nocifs en achetant 22 véhicules à carburant de remplacement pour le parc automobile du Ministère. Cet achat hausse le pourcentage de véhicules de son parc alimentés au moyen de carburants de remplacement à plus de 10 %, soit le double de l'année précédente. Agriculture et Agroalimentaire Canada, Santé Canada et le Service météorologique du Canada ont fait des achats semblables en 1999-2000.

La formation et la sensibilisation

Le Programme de formation environnementale de l'Atlantique des Forces maritimes de la Défense nationale a dispensé une formation aux agents environnementaux de l'unité dans le cadre de conférences sur des sujets spécialisés et une formation générale à la sensibilisation à l'environnement. De même, une formation a été offerte aux équipes de contrôle au sol de la base des Forces canadiennes de Trenton, au sujet des pratiques de gestion

exemplaires pour l'utilisation plus efficace du glycol pour les activités de dégivrage des avions. La formation a permis de réduire de 30 % la quantité d'agent dégivrant utilisée. Afin de promouvoir d'autres projets de prévention de la pollution à la base des Forces canadiennes de Trenton, un film vidéo sur la prévention de la pollution a été produit par Environnement Canada en partenariat avec la Défense nationale.

La Région du Pacifique et du Yukon d'Environnement Canada a cherché à accroître la mesure dans laquelle les programmes de protection de l'environnement favorisent la prévention par opposition à la gestion des déchets et à la lutte contre la pollution classiques. Les efforts comprenaient des séances et des réunions d'information avec différents membres du personnel du programme. Les membres du personnel qui ont assisté aux séances d'information ont fait l'objet d'un sondage avant et après, afin de mesurer leur capacité de reconnaître les solutions de prévention de la pollution et les mesures non préventives. La comparaison des résultats avant et après le sondage a montré une amélioration des notes moyennes de 51 % à 65 %.

Parcs Canada a élaboré une directive sur la lutte intégrée contre les ravageurs qui fournit des conseils sur la gestion et la réduction de l'utilisation des pesticides dans les installations ou sur les terres que possède, administre ou joue Parcs Canada. Celui-ci a l'intention d'éliminer complètement l'utilisation des pesticides à des fins esthétiques dans toutes ses installations.

Poursuivant ses efforts en vue d'aider l'Agence de promotion économique du Canada atlantique, Environnement Canada a donné à l'Agence un appui technique pour son programme de formation en développement durable. Plus d'une centaine de membres du personnel ont bénéficié de la formation dans toute la région. Environnement Canada a aussi contribué à la préparation d'un guide sur l'intégration de la planification environnementale et des pratiques éco-efficaces aux plans d'affaires présentés par les requérants qui demandent une aide financière à l'Agence.



Par le biais de plusieurs programmes et initiatives, les employés du gouvernement fédéral sont encouragés à utiliser des moyens de transport plus écologiques.

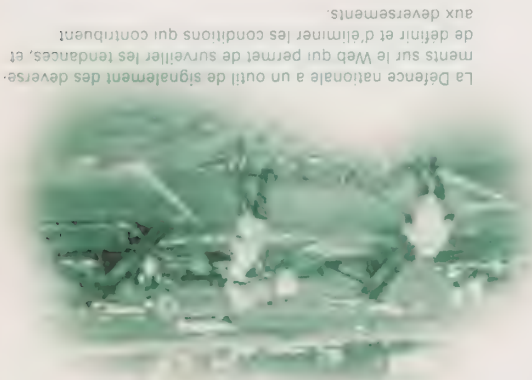
Les changements de comportement

Dans le cadre du programme Éconavette, Transports Canada a installé des douches et des supports à bicyclette à son administration centrale d'Ottawa. Par la suite, les employés du Ministère ont été encouragés à utiliser des moyens de transport actifs, comme la bicyclette ou la marche, pour se rendre au travail. Les deux prochaines étapes du programme seront axées sur l'accroissement de l'utilisation du covoiturage, des transports en commun et du télétravail.

Transports Canada, Environnement Canada, Santé Canada et d'autres ministères fédéraux ont participé au premier Défi transport national. Cet événement encourage les employés à choisir d'autres moyens de transport pour se rendre au travail et en revenir pendant une semaine. Les employés du gouvernement fédéral ont participé aux différents Défis transport locaux en utilisant les transports en commun, le covoiturage, la bicyclette, le patin à roues alignées, la marche ou le télétravail. L'objectif du projet à long terme est d'accroître le nombre de travailleurs qui se privent de leur voiture pour se rendre au travail en réduisant les attitudes négatives et les obstacles.

Pour diminuer l'utilisation de l'automobile, les employés de toutes les divisions de la Région du Québec d'Environnement Canada ont été encouragés à prendre les transports en commun. Avant d'acheter des billets de train ou d'autobus, de nombreux employés ont vérifié si des employés d'autres services se rendaient au même endroit afin de voyager ensemble.

Section 2 : Progrès réalisés au sein du gouvernement fédéral (suite)



sur le Web « SpillNet ». Cet outil permet au Ministère de surveiller les tendances et de définir et d'éliminer les conditions qui contribuent à l'augmentation des déversements aux déversements.

Des bioindicateurs ont été utilisés par la Région du Québec d'Environnement Canada afin de déterminer les sources de polluants atmosphériques. Les bioindicateurs ont un avantage d'absorber la pollution atmosphérique sur une plus longue période, ce qui signifie que seulement 30 échantillons ont dû être analysés par rapport à 364 avec les mécanismes classiques. Par conséquent, l'analyse a nécessité de plus petites quantités de produits chimiques et de matières et moins d'énergie par suite de la réduction des déplacements.

Pêches et Océans Canada a approuvé pour ses activités une politique environnementale et un cadre de gestion de l'environnement pour l'ensemble du Ministère. Celui-ci a terminé une étude de base de 13 aspects environnementaux pour 117 bateaux de la Garde côtière. Cette information a servi de fondement au choix d'objectifs pour l'ensemble de la flotte et pour le système de gestion environnementale du Ministère. Elle a aussi constitué la base de la mesure annuelle du rendement environnemental.

Environnement Canada préside un comité qui préconise la prévention de la pollution, des stimulants économiques et des mesures d'application comme moyens d'améliorer les installations de construction et de réparation navales dans la Région du Canada atlantique. À la suite de poursuites de certains chantiers navals, on a constaté un intérêt accru pour l'adoption de solutions de prévention de la pollution dans tous les chantiers navals du Canada atlantique. Par ailleurs, les autorités fonctionnelles exigent maintenant que les revêtements appliqués aux navires des Forces canadiennes émettent moins de composés organiques volatils.

conservation de l'eau, y compris les projets de l'IBF, avaient été mises en application dans 147 installations de TPSCC appartenant à la Couronne à la fin de mars 2000, par rapport à 128 en mars 1999.

La Défense nationale a réduit sa consommation d'eau de 65 % depuis 1989-1990. Ces réductions sont le fruit de la modernisation et de la rénovation des installations existantes et de la conception de nouvelles installations. De plus, la consommation d'énergie a diminué de 25 % depuis 1989-1990 grâce à l'adoption de meilleures pratiques de consommation d'énergie et la conclusion de marchés de services énergétiques.

Santé Canada a fait preuve d'initiative en adoptant des sources d'énergie de remplacement dans ses installations. Linc thermopompe puisant l'énergie dans le sol a été installée au Centre de santé de Tyndinaga et devrait permettre d'économiser 1 000 \$ par année en électricité. De plus, la planification de l'installation d'un système géothermique a été entreprise au Centre de santé de Gane Yohs, où le système devrait favoriser des économies de 10 000 \$ par année en frais d'énergie, en plus de 10 000 \$ par année en frais d'entretien. La Société canadienne de l'énergie du sol, Ressources naturelles Canada et les First Nation Technical Services ont participé à la mise en œuvre de ces initiatives avec Santé Canada.

Au bureau de Dartmouth d'Environnement Canada, toutes les fenêtres des côtes sud et ouest des bâtiments ont été remplacées par du verre teinté à haut rendement énergétique. Le projet devrait réduire les besoins de chauffage et de climatisation ainsi que la consommation d'énergie de 18 %.

La gestion des opérations et des installations

La Défense nationale, dans le cadre de son processus d'évaluation environnementale, examine régulièrement les répercussions possibles de ses activités et de ses projets sur l'environnement dès le stade de la planification. La détermination des répercussions environnementales permet de choisir les techniques de prévention de la pollution appropriées ou d'atténuer les répercussions avant la mise en œuvre du projet.

Pour prévenir les déversements de matières dangereuses, la Défense nationale a amélioré son outil de signalement des déversements

RECONNAISSANCE DE LA REDUCTION DES HALONS

La Défense nationale a adopté une démarche préventive pour la gestion des halons utilisés dans les systèmes d'extinction des incendies des bâtiments. À la suite de cette initiative, la Défense nationale a reçu le prix de 1999 de la US Environmental Protection Agency (EPA) pour la protection de la couche d'ozone stratosphérique, lequel lui a été accordé pour les progrès réalisés sur le plan de la récupération, de la réutilisation et du recyclage des halons.

OUVERTURE D'UN ACHAT ECOLOGIQUE?

Un achat écologique consiste à acheter des produits et des services qui atténuent les répercussions sur l'environnement. En tant que principal acheteur et gestionnaire de biens au pays, le Gouvernement du Canada joue un rôle important dans l'évolution du dossier des achats écologiques. Par exemple, le ministère des Ressources naturelles du Canada s'est engagé à acheter l'équivalent de 10 000 mégawatts-heures d'énergie verte en Alberta, sur une période de dix ans, à compter de janvier 1998. En 1998 et 1999, une réduction de 18 000 tonnes d'émissions de gaz à effet de serre a été réalisée.

canada en matière de protection de l'environnement
1999-2000

ÉCOLOGISATION DES OPÉRATIONS GOUVERNEMENTALES

La politique sur l'écologisation des opérations gouvernementales guide les ministères et organismes fédéraux dans la préparation de leurs stratégies de développement durable. Dans le discours du Trône d'octobre 1999, le gouvernement a réitéré son engagement d'écologiser ses opérations.

GESTION DES DÉCHETS

- Vérifications annuelles et mises à jour de la gestion des déchets;
- Élaboration et mise en œuvre de plans d'action pour la réduction des déchets;
- Système de recyclage mis en place; compostage là où c'est possible;
- Centralisation des activités de collecte, de stockage et d'élimination sans danger des déchets dangereux.

CONSERVATION DE L'EAU / ÉCONOMIES D'ÉNERGIE

- Vérifications effectuées;
- Élaboration et mise en œuvre de plans de conservation;
- Désignation de matériel et de mécanismes de conservation de l'eau et d'économie d'énergie en vue des achats futurs (p. ex., appareils économeurs d'eau, mesures de rendement énergétique pour l'éclairage et le chauffage de l'eau).

GESTION DU PARC AUTOMOBILE

- Maximisation du rendement du carburant et utilisation de carburants de remplacement pour économiser l'énergie et réduire les émissions;
- Réduction du nombre de véhicules à utilisation ministérielle;
- Vérification des émissions et entretien régulier;
- Recyclage de tous les fluides et de toutes les huiles utilisés dans les véhicules.

ACHATS

- Inclusion de clauses « vertes » aux contrats de service et d'approvisionnement;
- Minimisation de l'usage de produits chimiques nocifs (produits de nettoyage, solvants, peintures à base d'huile).

FORMATION ET SENSIBILISATION

- Formation du personnel à l'usage des méthodes et sensibilisation aux possibilités de conservation de l'eau et d'économies d'énergie, de réduction des déchets et de prise de décisions d'achats respectueux de l'environnement;
- Sensibilisation accrue des employés à l'optimisation de la prévention de la pollution dans leurs activités.

MESURES CORRECTIVES

- Désignation du matériel utilisant des CFC et des halons et substitution de produits chaque fois que possible;
- Élimination progressive du matériel contenant des BPC et entreposage sécuritaire des BPC inutilisés;
- Réservoirs de stockage de carburant conformes aux nouvelles lignes directrices et vérifiés régulièrement pour prévenir les fuites.

de l'énergie ont été entrepris dans 171 installations de Travaux publics et Services gouvernementaux Canada (TPSGC), représentant 60 % de l'ensemble des installations, en superficie. Sur le plan cumulé, la consommation d'énergie dans les installations de TPSGC appartenant à la Couronne a pu être réduite d'environ 20 % comparativement aux niveaux de référence de 1990. Des mesures de

MESURES PRISES :

Le Centre de recherches de Lethbridge (Alberta) d'Agriculture et Agroalimentaire Canada a modernisé son système d'irrigation. La troisième étape du projet a permis de réduire la consommation de plus de 100 millions de litres d'eau pendant toute l'étape et devrait entraîner une réduction de la consommation de l'ordre de 100 millions de litres d'eau par année. Le Ministère a aussi pris des mesures de réduction de la consommation d'énergie dans ses installations de recherche de Terre-Neuve et de la Nouvelle-Écosse et des mesures de conservation de l'eau à son Centre de recherches d'Ottawa.

MESURES PRISES :

Affaires indiennes et du Nord Canada a réduit son parc de huit véhicules et a réussi à abaisser ses émissions de dioxyde de carbone de 3 %. De même, Citoyenneté et Immigration Canada a étudié certaines mesures d'optimisation de son parc automobile en examinant les possibilités d'application de solutions de remplacement en ce qui concerne le transport régional.

MESURES PRISES :

Le personnel chargé des achats à un des laboratoires de Santé Canada, à Winnipeg, a commencé à acheter et à utiliser des cartouches recyclées pour les imprimantes et les télécopieurs.

MESURES PRISES :

Des présentations sur les dispositions de la LCPE 1999 concernant la planification de la prévention de la pollution ont été données au personnel d'Environnement Canada, dans tout le pays. Le ministre des Affaires étrangères et du Commerce international a dispensé une formation comparable sur la prévention de la pollution.

MESURES PRISES :

À la fin de l'année, 72 % des installations de Travaux publics et Services gouvernementaux Canada (TPSGC) étaient déclarées exemptes de BPC. TPSGC a réussi à respecter son objectif de réduction des pertes de frigorigènes de 4 % par année, avec des pertes de seulement 1 % par année.

ses présentations, de même qu'une mallette électronique. Par exemple, en 1999-2000, le bureau de coordination de Saint-Laurent Vision 2000 a employé seulement 60 diapositives ordinaires pour ses présentations, au lieu des 2 000 qu'il avait normalement l'habitude d'utiliser. Le Conseil de gestion d'Environnement Canada et les différentes tables rondes du Ministère ont utilisé des mallettes électroniques. L'usage de ces mallettes a permis d'économiser près de 7 000 feuilles de papier par année.

La base des Forces canadiennes de Petawawa a réduit la quantité de déchets solides destinés aux décharges en réutilisant toute la production de boues de l'usine d'épuration des eaux usées de la ville de Petawawa dans le cadre de projets de revêtement et de réduction de l'érosion. Cette activité a permis de réutiliser chaque jour environ 1,8 million de gallons d'eau usées de l'usine, dont 70 % sont produites par la base et par les logements familiaux.

Cherchant à réduire les déchets dangereux qu'elle produit, la base des Forces canadiennes de Petawawa a fait l'acquisition et l'installation d'un fusil pour le nettoyage de la peinture à l'eau. Celui-ci a permis d'éliminer l'utilisation de solvant organique pour enlever la peinture. Parmi les autres exemples d'activités de prévention de la pollution sur la base, notons la réutilisation de l'antigel des véhicules et des déchets de copeaux de bois pour l'entretien des sols et comme couche finale de recouvrement de décharge.

Dans le même esprit, tous les projets de démolition réalisés à la base des Forces canadiennes de Trenton ont été évalués par le personnel afin d'en déterminer les possibilités de recyclage et de réutilisation. L'amélioration des pratiques de gestion des déchets a permis de détourner de 5 à 20 % du matériel destiné à la décharge.

L'efficacité énergétique / la conservation de l'eau

L'Initiative des bâtiments fédéraux (IBF), dirigée par Ressources naturelles Canada, vise à faciliter les travaux de modernisation et de rénovation des bâtiments fédéraux permettant d'améliorer l'efficacité énergétique et la consommation d'eau. L'IBF a aidé à réduire les émissions de gaz à effet de serre d'environ 7 % pendant la période de 1990-1998. Des projets associés à l'IBF ou des mesures connexes de conservation

Un système de gestion environnementale (SGE) offre un cadre systématique pour aider une organisation à gérer ses obligations en matière d'environnement, ainsi qu'à documenter, évaluer et communiquer son rendement en ce sens. Coprésidé par Environnement Canada et Ressources naturelles Canada, le Comité fédéral sur les systèmes de gestion de l'environnement favorise la mise en œuvre efficace des systèmes de gestion environnementale des ministères. Au niveau ministériel, Santé Canada a conçu un SGE propre aux hôpitaux et a fourni

ENTENTES INTERMINISTÉRIELLES POUR LA PRÉVENTION DE LA POLLUTION ET LA GESTION DE L'ENVIRONNEMENT

Les ministères et organismes fédéraux ont souvent des intérêts, des mandats ou des responsabilités qu'ils partagent pour le développement durable. La participation à des groupes interministériels est essentielle pour la mise au point d'outils communs, la coordination des activités et l'échange de renseignements.

Les mécanismes interministériels qui existent pour favoriser la coordination comprennent :

- Le Comité de coordination du développement durable des sous-ministres;
- Le Réseau interministériel sur les stratégies de développement durable;
- Le Comité fédéral sur les systèmes de gestion de l'environnement;
- Le Comité de coordination sur la prévention de la pollution.

un soutien à la formation des employés; Transports Canada a piloté l'intégration d'un SGE fondé sur la norme ISO 14001 à un hangar d'entretien d'aéronefs et réussi à atténuer les répercussions environnementales dans un certain nombre d'autres domaines, notamment la réduction des déchets dangereux produits par cinq lavasses de pièces au varsol, en remplaçant le varsol par une solution à base d'eau. En vertu de son SGE, le ministère des Affaires étrangères et du Commerce international a adopté des objectifs environnementaux et des mesures du rendement dans 11 domaines prioritaires.

La réduction des déchets

Afin de réduire la quantité de déchets produits, la Région du Québec d'Environnement Canada a utilisé des diapositives électroniques pour

INITIATIVE DE RECHERCHE SUR LES SUBSTANCES TOXIQUES (IRST)

L'IRST a été lancée conjointement par Environnement Canada et Santé Canada pour subventionner les recherches sur les substances toxiques afin de constituer une bonne base scientifique permettant d'étayer les décisions stratégiques, la gestion des polluants et la protection de l'environnement et de la santé humaine. Pour renseignements, consultez : www.hc-sc.gc.ca/ehp/dhm/irst



GESTION DES SUBSTANCES TOXIQUES

La Politique de gestion des substances toxiques décrit un processus de gestion des risques fondé sur deux principaux objectifs : la quasi-élimination de l'environnement des substances toxiques qui résultent principalement de l'activité humaine et qui sont persistantes, bioaccumulables (substances de la voie 1) et la gestion des autres substances toxiques et des substances préoccupantes pendant tout leur cycle de vie afin d'empêcher ou de minimiser leur rejet dans l'environnement (substances de la voie 2). Environnement Canada applique une démarche de prévention de la pollution et le principe de prudence à la gestion des substances de la voie 1 et de la voie 2. Le Ministère travaille aussi à la mise en œuvre de plans d'action en vue de la quasi-élimination des substances toxiques les plus dangereuses (par exemple, les dioxines, les furanes, l'hexachlorobenzène, les BPC, le DDT). Des mesures nationales ont déjà été prises pour limiter sévèrement ou interdire la production, l'utilisation, l'importation ou le rejet de ces substances.

Environnement Canada, Santé Canada, d'autres ministères fédéraux et des gouvernements provinciaux se partagent la tâche de gérer les substances déclarées toxiques en vertu de la *Loi canadienne sur la protection de l'environnement* et, à ce titre, sont des partenaires clés dans l'élaboration des mesures de prévention et de réduction de ces substances. Le processus d'options stratégiques a servi à élaborer des options de gestion pour les 25 substances déclarées toxiques au sens de la LCPE (première Liste des substances d'intérêt prioritaire). Quatorze tables de concertation multipartites, sept par secteur et sept par substance, ont été établies et présidées par Environnement Canada. Chaque table de concertation a formulé des recommandations sur la manière la plus pratique de traiter les problèmes associés à des substances toxiques précises. Des mesures de gestion sont en préparation à la suite des recommandations présentées par dix des tables de concertation et les travaux se poursuivent pour terminer les tâches des quatre autres.

SECTEURS VISÉS

Nettoyage à sec** (tétrachloroéthylène)

Dégraissage aux solvants** (tétrachloroéthylène; trichloroéthylène)

Préservation du bois* (hydrocarbures aromatiques polycycliques; composés de chrome hexavalent; lieux contaminés par la créosote; dioxines et furanes)

Fabrication de l'acier** (composés inorganiques d'arsenic; composés inorganiques du cadmium; composés inorganiques oxygénés, sulfures et solubles du nickel; benzène; fluorures inorganiques; hydrocarbures aromatiques polycycliques; dibenzodioxines polychlorées; dibenzofuranes polychlorés; dichlorométhane; tétrachloroéthylène; 1,1,1-trichloroéthane; biphenyles polychlorés; composés de chrome hexavalent; plomb; mercure)

Fusion du métal de base** (composés inorganiques d'arsenic; composés inorganiques du cadmium; composés inorganiques oxygénés, sulfures et solubles du nickel; dibenzodioxines polychlorées; dibenzofuranes polychlorés; plomb; mercure)

Finissage des métaux** (composés de chrome hexavalent)

Production d'électricité au charbon* (composés inorganiques d'arsenic; composés inorganiques du cadmium; composés inorganiques oxygénés, sulfures et solubles du nickel; composés de chrome hexavalent, mercure)

SUBSTANCES VISÉES

Benzidine et 3,3'-dichlorobenzidine**

Fibres de céramique réfractaire**

Paraffines chlorées à chaîne courte

Dichloroéthane

* Recommandations faites en 1999-2000

** Recommandations faites avant 1999-2000

Le développement durable et les systèmes de gestion

de l'environnement

Environnement Canada a préparé un rapport sur l'utilisation du mazout lourd par les ministères fédéraux dans la région de l'Atlantique. La combustion du mazout lourd produit plus d'émissions de particules, de dioxyde de soufre, d'oxydes d'azote et de dioxyde de carbone que celle du mazout léger, du gaz naturel et du chauffage par district. Ce rapport constitue une première étape de la promotion des solutions de remplacement du mazout lourd.

En vertu de la *Loi sur le vérificateur général*, les ministères fédéraux sont tenus de présenter au Parlement une stratégie de développement durable qui expose leurs objectifs d'intégration du développement durable à leurs politiques, à leurs programmes et à leurs activités. Environnement Canada a coordonné et dirigé les efforts fédéraux par l'entremise du Réseau interministériel sur les stratégies de développement durable. Conformément à l'engagement d'apporter des améliorations continues, les ministères doivent mettre leur stratégie à jour tous les trois ans, la première mise à jour étant prévue pour décembre 2000. Les ministères fédéraux ont concentré leurs efforts en 1999-2000 sur la mise à jour des stratégies existantes, en se fondant sur la mise en œuvre de la première série, y compris l'accentuation de la coopération interministérielle pour les questions d'intérêt commun.

Progrès réalisés au sein du gouvernement fédéral

Les ministères fédéraux, par l'élaboration et la mise en œuvre des stratégies, des programmes et des projets, intègrent la prévention de la pollution à leurs activités.



En juin 1999, le gouvernement a approuvé un nouveau règlement appelé à réduire la teneur en soufre dans l'essence. D'ici 2005, la limite fixée représentera une baisse de 90 % par rapport à la teneur en soufre actuelle

La législation et les règlements
Le 31 mars 2000, la Loi canadienne sur la protection de l'environnement, 1999 (LCPE 1999) renouvelée et plus

musclée est entrée en vigueur, la prévention de la pollution en étant la pierre angulaire. La Loi renouvelée confère au ministre de l'Environnement le pouvoir d'exiger la planification de mesures de prévention de la pollution pour les substances déclarées toxiques en vertu de la LCPE. En voici d'autres dispositions :

- Traitement accéléré de l'évaluation et de la réduction des substances toxiques;
- Élimination progressive des substances les plus dangereuses ou surveillance permettant de s'assurer qu'elles ne sont pas rejetées dans l'environnement en une quantité mesurable;
- Amélioration de l'application des règlements; « Protection améliorée des » dénonciateurs » pour encourager davantage de Canadiens à signaler les infractions à la LCPE;
- Coopération et partenariat plus efficaces avec les autres gouvernements et les peuples autochtones.

Puisque les défis environnementaux, les attentes et les connaissances juridiques et scientifiques changent constamment, la Loi sera réexaminée par un comité parlementaire tous les cinq ans. Pour plus de renseignements, consultez : www.ec.gc.ca/Registre/LCPE/

En juin 1999, le gouvernement a approuvé un nouveau règlement, en vertu de la Loi canadienne sur la protection de l'environnement, 1999, qui fixe une limite à la teneur en soufre de l'essence de 30 parties par million (ppm) à compter du 1^{er} janvier 2005. Cette limite représente une baisse de 90 % par rapport à la teneur en soufre actuelle. Cette exigence serait appliquée graduellement pour aider l'industrie du raffinage à s'y adapter tout en retirant les avantages sur le plan de la santé et de l'environnement de la faible teneur en soufre. Au cours de la première étape, la teneur

Adopté en juillet 1999, le nouveau Règlement fédéral sur les halocarbures vise à réduire au minimum le rejet de substances appauvrissant la couche d'ozone à partir des systèmes de réfrigération, de climatisation, de nettoyage aux solvants et de protection contre les incendies dans les installations fédérales. Plusieurs ministères, dont Environnement Canada et la Défense nationale, ont tenu des ateliers d'information à l'intention de leur personnel sur les exigences de ces règlements

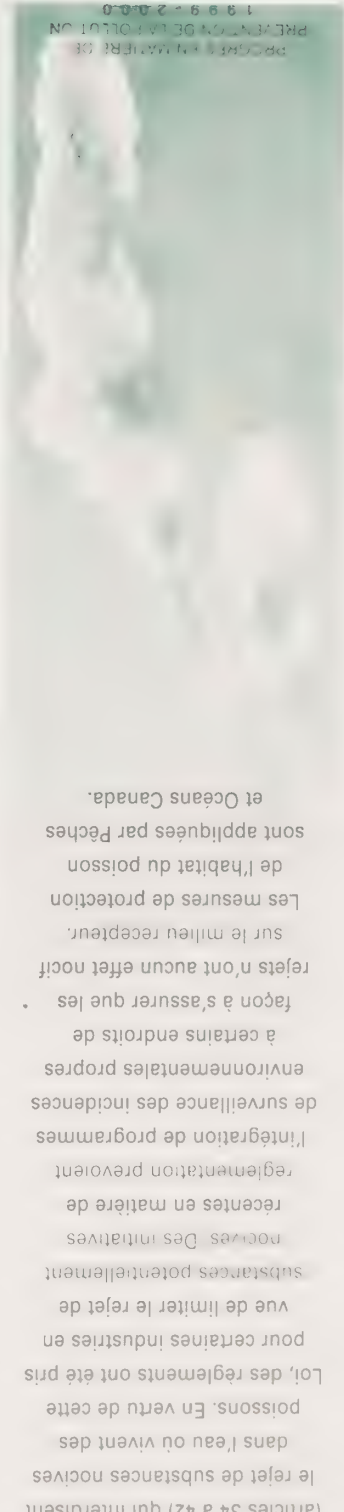
Les substances toxiques / L'assainissement de l'air

Renforcé grâce à la Loi canadienne sur la protection de l'environnement (LCPE) renouvelée, l'Inventaire national des rejets de polluants (INRP) vise à offrir aux Canadiens la possibilité de s'informer des rejets de polluants des installations situées dans leurs collectivités. Depuis 1999, les entreprises doivent déclarer à l'Inventaire les polluants additionnels des substances porte le nombre total de substances 20 substances toxiques. L'addition de ces vingt LCPE de 10 à 30.

ENVIRONNEMENT CANADA

Environnement Canada

administrer les dispositions de la Loi sur les pêches relatives à la prévention de la pollution (articles 34 à 42) qui interdisent le rejet de substances nocives dans l'eau où vivent des poissons. En vertu de cette Loi, des règlements ont été pris pour certaines industries en vue de limiter le rejet de substances potentiellement nocives. Des initiatives récentes en matière de réglementation prévoient l'intégration de programmes de surveillance des incidences environnementales propres à certains endroits de façon à s'assurer que les rejets n'ont aucun effet nocif sur le milieu recepleur. Les mesures de protection de l'habitat du poisson sont appliquées par Pêches et Océans Canada.



Section 1 : Renforcer la stratégie de prévention de la pollution (suite)

la pollution est une responsabilité commune aux gouvernements, aux particuliers, ainsi qu'aux secteurs industriel, commercial, institutionnel et communautaire.

Pour faire la preuve de son soutien à la prévention de la pollution, le CCME attribue chaque année des prix dans ce domaine et tient à jour un réseau de prévention de la pollution. Le réseau sert de tribune d'échange d'informations de façon ponctuelle parmi ses membres et assure un soutien technique au Programme de récompense du CCME pour la prévention de la pollution.

Le Gouvernement du Canada, avec des intervenants du secteur privé, des organisations environnementales non gouvernementales, des collectivités, les syndicats et les universités, met en pratique les mesures de prévention de la pollution par une combinaison d'instruments réglementaires et non réglementaires, notamment par la modernisation des lois et des règlements, la gestion des programmes nationaux, l'établissement de lignes directrices et de codes de pratiques pour les exploitations industrielles, l'élaboration de normes pancanadiennes pour des substances particulières, l'appui aux initiatives volontaires, la facilitation de l'accès aux outils et à l'information et la mise en œuvre des accords internationaux.

POLITIQUES ET RÉGLEMENTS À L'APPUI DE LA PRÉVENTION DE LA POLLUTION

1998	Loi canadienne sur la protection de l'environnement
1993	Le rapport national pour la prévention de la pollution du Conseil
1996	des ministres de l'Environnement
1996	Politique de gestion des substances toxiques
1996	Loi sur le vérificateur général relativement aux stratégies
1996	du développement durable
1996	Politique d'écologisation des opérations gouvernementales
1996	Prévention de la pollution — une stratégie fédérale de mise en œuvre
1996	Une stratégie en vue de remplir l'engagement du CCME en matière
1998	de prévention de la pollution
1998	Politique du CCME pour la gestion des substances toxiques
2000	Loi canadienne sur la protection de l'environnement, 1999 (LCPE 1999)

les résultats. Dans l'ensemble, seize ministères et organismes fédéraux ont contribué à ce rapport.

La mise en pratique de la stratégie

Au Canada, la compétence en matière d'environnement est partagée par les municipalités, les provinces, les territoires et le gouvernement fédéral. Le Conseil canadien des ministres de l'Environnement (CCME) est devenu la première tribune du Canada pour les entretiens intergouvernementaux et la prise de mesures à propos des questions environnementales. Le Conseil est composé des ministres de l'Environnement fédéral, provinciaux et territoriaux. Son mandat est d'améliorer la protection de l'environnement et de promouvoir le développement durable au Canada.

En 1993, le CCME a contribué à l'évolution de la prévention de la pollution au Canada en publiant l'Engagement national pour la prévention de la pollution. En mai 1996, le CCME se penchait encore une fois sur la

prévention de la pollution en publiant La Stratégie pour l'engagement du CCME pour la prévention de la pollution. Cette stratégie expose une vision, une mission et des objectifs communs, ainsi que des principes directeurs pour la mise en œuvre de la prévention de la pollution par toutes les provinces, par les territoires et par le gouvernement fédéral.

Dans le cadre de la stratégie, les secteurs de compétence représentés au sein du CCME ont adopté une définition commune de la prévention de la pollution : L'utilisation de procédés, de pratiques, de matières, de produits ou de formes d'énergie qui empêchent ou qui minimisent la production de polluants et de déchets, à la source. Tel qu'il est indiqué dans la stratégie du CCME, la prévention de

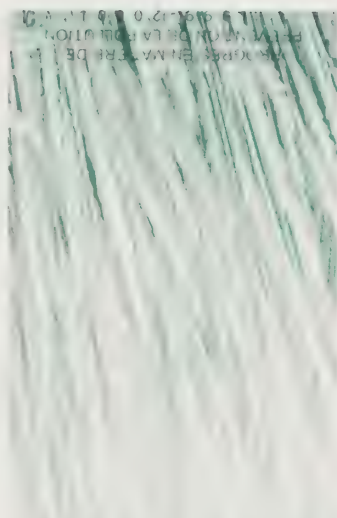
- Pêches et Océans Canada
- Affaires étrangères et Commerce international
- Santé Canada
- Industrie Canada
- Défense nationale
- Ressources naturelles Canada
- Travaux publics et Services gouvernementaux Canada
- Transports Canada

Progrès en matière de prévention de la pollution, le rapport annuel du CCP, a été publié pour la première fois en 1996. Ce rapport annuel sert à renseigner les Canadiens et les hauts fonctionnaires du gouvernement des progrès nationaux en matière de prévention de la pollution, soulignant les réalisations ainsi que les réussites dans ce domaine partout au pays. En ratissant les progrès aux cinq secteurs cibles par la stratégie fédérale de prévention de la pollution et le plan d'action, le rapport établit un cadre qui permet de surveiller le rendement et de mesurer la portée des succès fédéraux en matière d'environnement.

Les trois premiers rapports annuels du CCP ont été publiés par Environnement Canada. Cette année, le rapport est le deuxième à être publié à titre de document du Gouvernement du Canada, ce qui reflète l'importance de la pollution dans tous les ministères du gouvernement fédéral. Parce qu'il illustre la collaboration intergouvernementale et constitue un exemple de cadre de surveillance du rendement et de compte rendu des résultats obtenus, le rapport Progrès en matière de prévention de la pollution a aussi été cité dans le rapport du Secrétaire du Conseil du Trésor, intitulé Gérer les résultats 2000, comme un excellent modèle de rapport axé sur

PRATIQUES ET TECHNIQUES DE PRÉVENTION DE LA POLLUTION

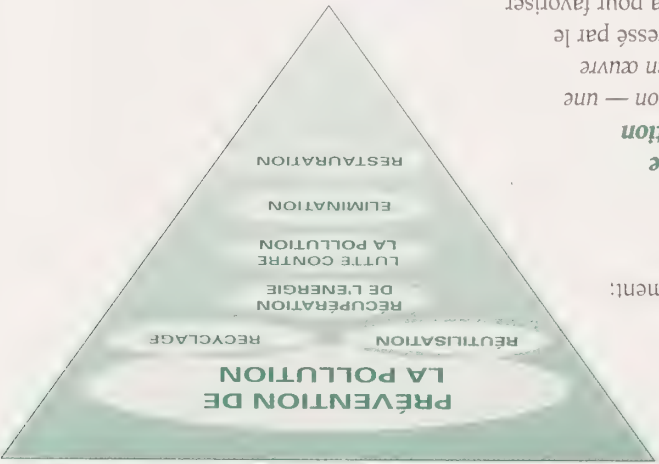
- Conservier et utiliser efficacement les ressources naturelles
- Substituer des matériaux et des matières premières « propres » et « écologiques »
- Penser « vert » pour les achats, la conception et la reformulation des produits, les changements de procédés, les modifications à l'équipement et la production
- Réduire les biens de production et les déchets, réutiliser et recycler sur place
- Former tout le monde en techniques de prévention de la pollution
- Adopter des pratiques d'exploitation moins polluantes



Renforcer la stratégie de prévention de la pollution

Les lois et les politiques qui appuient la prévention de la pollution font partie de l'engagement national à l'égard de la santé humaine et de l'environnement.

HIERARCHIE DE LA PROTECTION DE L'ENVIRONNEMENT



La stratégie fédérale de prévention de la pollution — une

- Limite la responsabilité civile future avec plus de certitude;
- Reconnaît que les déchets représentent un coût qui peut être réduit;
- Évite dans le futur les opérations coûteuses d'assainissement;
- Rend l'économie plus compétitive.

Gouvernement du Canada pour favoriser la prévention de la pollution en tant que pierre angulaire de la protection de l'environnement. Approuvée par les ministres fédéraux en juin 1995, la stratégie explique en détail la politique du gouvernement et établit, pour les mesures à prendre, des priorités fondées sur cinq buts comportant des partenariats avec des ministères et des organismes fédéraux, d'autres ordres de gouvernement, le secteur privé, la population canadienne et la communauté internationale.

- Les buts de la stratégie fédérale de prévention de la pollution sont les suivants :
 - Au sein du gouvernement fédéral :
 - institutionnaliser la prévention de la pollution dans toutes les activités du gouvernement fédéral;
 - Avec d'autres gouvernements :
 - favoriser un effort national au chapitre de la prévention de la pollution;
 - Avec le secteur privé : créer un climat dans lequel la prévention de la pollution devient un facteur important dans les activités industrielles;
 - Avec tous les Canadiens : leur offrir l'information et les outils nécessaires

Le Comité fédéral de coordination sur la prévention de la pollution

- pour adopter des méthodes de prévention de la pollution;
- Avec la communauté internationale : participer aux initiatives internationales de prévention de la pollution.

Le Comité de coordination sur la prévention de la pollution (CCPP) a été créé en 1992. Il encourage collectivement l'application de la *Prévention de la pollution — une stratégie fédérale de mise en œuvre* (1995) en aidant à promouvoir la mise en pratique de la prévention de la pollution à l'échelle du gouvernement fédéral et auprès des clients de ce dernier. Environnement Canada préside le comité. Le comité, dont les membres figurent ci-dessous, comprend des représentants de onze ministères et organismes fédéraux.

- Environnement Canada
- Agriculture et Agroalimentaire Canada
- Agence canadienne de développement international

Le gouvernement fédéral définit la prévention de la pollution comme suit : l'utilisation de procédés, de pratiques, de matières, de produits, de substances ou de formes d'énergie qui empêchent ou qui minimisent la production de polluants et de déchets et le gaspillage, tout en réduisant, dans l'ensemble, les risques pour la santé humaine ou l'environnement. Le but de la prévention de la pollution consiste à éliminer les causes de la pollution plutôt que de traiter les déchets produits. La prévention de la pollution suppose une amélioration continue par des changements apportés à la conception, aux techniques, à l'exploitation et aux comportements. Elle favorise des changements susceptibles d'entraîner une baisse des coûts de production, un accroissement de l'efficacité et une meilleure protection de l'environnement.

Les pratiques et les techniques de prévention de la pollution sont axées sur des éléments tels que : les substances préoccupantes, l'utilisation efficace et la conservation des ressources naturelles, la réutilisation et le recyclage sur place, la substitution des matériaux et des matières premières, l'efficacité de l'exploitation, la formation, les techniques d'achat, la conception des produits, les changements de procédés, la modification de la composition de produits, les modifications à l'équipement et la production plus propre.

- Avantages de la prévention de la pollution :
 - Minimise ou enraye la production de polluants;
 - Évite le transfert des polluants d'un milieu à un autre;
 - Accélère la réduction ou l'élimination des polluants;
 - Réduit les risques pour la santé;
 - Favorise la mise au point de technologies de prévention de la pollution;
 - Utilise plus efficacement l'énergie, les matériaux et les ressources;
 - Minimise le recours à des mesures coûteuses d'application de la Loi;

Progrès réalisés avec la

communauté internationale

Le gouvernement fédéral continue de représenter les intérêts du Canada à l'étranger dans le

domaine de l'environnement en participant à

l'établissement et à la mise en œuvre d'accords

et de programmes de transfert de technologie

internationaux, ainsi que par la coopération

scientifique. L'année 1999-2000 a été marquée

par la signature du Protocole pour réduire

l'acidification, l'eutrophisation et l'ozone

troposphérique et par le 25^e anniversaire de

la signature de l'Accord relatif à la qualité de

l'eau dans les Grands Lacs.

L'Agence canadienne de développement inter-

national continue de promouvoir la prévention

de la pollution à l'étranger en mettant au point

des technologies environnementales dans des

secteurs tels que le pétrole, les textiles et la

fabrication. Le Gouvernement du Canada

demeure un participant actif aux initiatives

concernant les régions Asie-Pacifique et

Amérique du Sud, y compris le Projet de

coopération Chine-Canada en faveur d'une

production plus propre et le projet de cyclisme

communautaire. Le Gouvernement du Canada

a aussi participé à des programmes ciblant

les petites et moyennes entreprises, notamment

différents programmes d'échange de technologies

visant à accroître les compétences de ceux qui

doivent veiller à la protection de l'environnement.

Perspectives d'avenir

Le rapport sur les Progrès en matière de

prévention de la pollution 1999-2000 confirme

que la pratique de la prévention de la pollution

se poursuit dans les différents secteurs d'activité

De plus, il montre que les techniques et les

procédés utilisés pour la prévention de la

pollution évoluent en fonction des enjeux

nationaux et mondiaux.

Les succès obtenus en 1999-2000 placent

le Gouvernement du Canada en meilleure

position pour soutenir un environnement

plus sain et plus résistant aux assauts en

ce nouveau millénaire.

matière de technologies moins polluantes. Les ministères fédéraux se sont engagés à intégrer la prévention de la pollution à la sensibilisation à l'environnement de tout leur personnel. Certains ministères ont eu recours à des techniques de commercialisation sociale afin de réduire les obstacles aux changements de comportement. Par exemple, Transports Canada a encouragé l'utilisation de moyens de transport durables en offrant des mesures incitatives à son personnel.

Progrès réalisés avec d'autres gouvernements

En vertu de l'Accord pancanadien sur l'harmonisation environnementale, supervisé par le Conseil canadien des ministères de l'Environnement, les gouvernements et les organismes fédéraux, provinciaux et territoriaux collaboreront à l'établissement de normes nationales pour la prévention et la réduction des substances toxiques. Les normes pancanadiennes pour six substances (mercure, dioxines et furannes, ozone, particules, hydrocarbures pétroliers et benzène) devraient être terminées en 2001.

Parcs Canada et Environnement Canada ont apporté un soutien technique aux initiatives de planification durable d'administrations locales comme la municipalité de Banff, la municipalité de Surrey et la municipalité régionale de Halifax. En outre, Environnement Canada a continué à diriger les travaux des initiatives axées sur l'écosystème, y compris celles du bassin géogien en Colombie-Britannique et du bassin des Grands Lacs.

Les récents efforts conjoints des gouvernements fédéral et provinciaux en ce qui concerne les changements climatiques offriront des possibilités dans l'avenir de prévenir la pollution à l'aide d'initiatives telles que la rénovation d'immeubles et la promotion d'autres modes de transport.

Progrès réalisés avec le secteur privé

L'investissement dans les travaux de recherche et de développement a permis de mettre au point de nouvelles méthodes innovatrices de prévention de la pollution

au pays et à l'étranger. Ressources naturelles Canada, Industrie Canada, Développement économique Canada et Environnement Canada ont apporté un soutien technique et financier à la commercialisation et à la promotion de technologies canadiennes de prévention de la pollution au moyen de programmes tels que l'Initiative canadienne de recherche sur les matériaux légers, le Fonds d'action pour le changement climatique. Partenariat technologique Canada et l'Initiative régionale stratégique, de même que par l'entremise d'établissements de recherche comme le Centre de technologies de recherche et de développement Canada et à la faveur de projets bilatéraux avec d'autres pays financés par l'Agence canadienne de développement international et d'autres donateurs.

Bon nombre de ces technologies sont communiquées par Solutions environnementales canadiennes, un outil d'information sur Internet.

Grâce à des partenariats, les ministères fédéraux ont pu prévenir la pollution en facilitant l'établissement et l'adoption par le secteur privé de pratiques de gestion exemplaires, de procédés propres et de technologies écologiques. La participation volontaire au programme Accélération de la réduction et de l'élimination des toxiques (ARET) a permis à l'industrie et aux ministères de continuer à faire de réels progrès vers la réalisation des objectifs déclarés d'ARET, et les participants se sont engagés à réduire encore d'avantage les rejets dans l'environnement. Les autres initiatives du secteur privé décrites dans le présent rapport comprennent : les exigences de réduction des déchets pour les activités de construction, de rénovation et de démolition dirigées par Travaux publics et Services gouvernementaux Canada, la prévention et le traitement des effluents des mines, des fabriques et de la métallurgie, sous la responsabilité de Ressources naturelles Canada et les pratiques environnementales exemplaires pour les terrains de golf et les activités aquacoles, dirigées par Environnement Canada.

Les besoins uniques des petites et moyennes entreprises sont reconnus par

Développement économique Canada, Ressources naturelles Canada et Environnement Canada dans le cadre de programmes qui visent l'éco-efficacité, la gestion de l'environnement et le soutien technologique.

Progrès réalisés avec le public canadien

Des connaissances techniques et de l'information d'importance cruciale ont pu être échangées grâce à l'expansion des réseaux de prévention de la pollution tels la Table ronde du Canada sur la prévention de la pollution et par le recours à des produits Internet comme le Centre canadien d'information sur la prévention de la pollution.

Les activités communautaires locales axées sur des problèmes environnementaux particuliers reçoivent un appui continu dans le cadre de projets visant à promouvoir l'efficacité énergétique, la conservation de l'eau, un mode de vie plus sain et les produits et services respectueux de l'environnement. Les projets ciblent différents publics, y compris les ménages, les propriétaires d'automobiles, les consommateurs et les enfants.

Sommaire

Le Canada maintient son engagement à l'égard de la prévention de la pollution comme le moyen le plus efficace de protéger la santé humaine et l'environnement.

Le présent rapport, *Progrès en matière de prévention de la pollution 1999-2000*, illustre les réalisations du gouvernement fédéral relativement à l'intégration de la prévention de la pollution à ses propres activités et à celles de ses partenaires. Il s'agit du cinquième rapport annuel du genre préparé par le Comité de coordination sur la prévention de la pollution. Le rapport décrit les progrès réalisés d'après les objectifs établis dans la *Stratégie fédérale de prévention de la pollution* et dans le plan d'action, au cours de l'année terminée le 31 mars 2000, et démontre l'esprit de leadership et d'engagement du gouvernement fédéral à l'égard de la prévention de la pollution. Cette année, tous les ministères fédéraux ont été encouragés à consigner leurs efforts en matière de prévention, et des mesures ont été prises pour faire en sorte que le document rende davantage compte des résultats.

La prévention de la pollution — une stratégie fédérale de mise en œuvre établit l'ordre de priorité des mesures à prendre compte tenu des cinq secteurs cibles : les ministères et organismes fédéraux, les autres ordres de gouvernement, le secteur privé, les Canadiens et la communauté internationale. En orientant ses efforts vers la prévention de la pollution au lieu de la gestion après coup, la stratégie fédérale vise l'objectif environnemental ultime du développement durable.

Principales réalisations de l'année

Le Gouvernement du Canada travaille à faire évoluer le dossier de la prévention de la pollution par la modernisation des lois et des règlements, par l'intégration de la prévention de la pollution aux programmes, aux lignes directrices et aux codes de pratiques pour les exploitations industrielles, par des partenariats avec le secteur privé, d'autres niveaux d'administration publique et des collectivités, par le soutien d'initiatives non réglementaires et par la participation à l'élaboration et à la mise en œuvre d'accords internationaux.

Progrès réalisés au sein du gouvernement fédéral

Le 31 mars 2000, le gouvernement fédéral a adopté la *Loi canadienne sur la protection*

de l'environnement, 1999 (LCPE 1999), dont la pierre angulaire est la prévention de la pollution. La loi renouvellée exige qu'un plus grand nombre de substances préoccupantes soient évaluées plus rapidement, fixe des limites sévères pour la réduction des substances toxiques et exige la quasi-élimination des rejets des substances toxiques les plus dangereuses, celles qui sont persistantes et bioaccumulables. La loi confère au ministre de l'Environnement le pouvoir d'exiger des plans de prévention de la pollution pour les substances déclarées toxiques en vertu de la LCPE. Les règlements adoptés en vertu de la LCPE 1999 en 1999-2000 comprennent le *Règlement sur le soufre dans l'essence* et le *Règlement fédéral sur les halocarbures*.

Les initiatives fédérales, telles que la Politique de gestion des substances toxiques, l'Écologisation des opérations gouvernementales et l'Inventaire national des rejets de polluants, demeurent le fondement des cadres de mesure opérationnels et stratégiques plus détaillés nécessaires à l'application réussie des mesures préventives pour protéger l'environnement. Afin d'écologiser leurs opérations, Agriculture et Agroalimentaire Canada, Travaux publics et Services gouvernementaux Canada et le ministère de la Défense nationale ont pris des initiatives de réduction de la consommation de l'eau qui permettent de réaliser des économies financières importantes. Les initiatives de gestion du parc automobile et les investissements dans les carburants de remplacement de plusieurs ministères ont permis d'améliorer le rendement des véhicules et de réduire les émissions de gaz à effet de serre.

Les ministères ont eu recours à la prévention de la pollution pour atteindre ou dépasser les exigences des règlements et des politiques en matière d'environnement. Le ministère de la Défense nationale a remporté le prix 1999 de protection de l'zone stratosphérique de la US Environmental Protection Agency décerné en reconnaissance des progrès accomplis par le Ministère en matière de récupération, de valorisation et de réutilisation des halons. En utilisant des véhicules électriques, le gouvernement fédéral et Transports Canada ont fait preuve de leadership en

Message du ministre de l'Environnement

J'ai le plaisir de vous présenter le cinquième rapport annuel du Comité de coordination sur la prévention de la pollution du gouvernement fédéral intitulé *Progrès en matière de prévention de la pollution 1999-2000*.

LA PRÉVENTION DE LA POLLUTION

est la responsabilité de tous. Nous profitons tous des gestes posés par les entreprises, les collectivités et les particuliers qui se soucient de la qualité de l'air et de l'eau pour les générations actuelles et à venir.

Ces mesures ont des incidences considérables sur le plan collectif : amélioration de la qualité de l'air et de l'eau, meilleure santé, écosystèmes et habitats durables – bref, une meilleure qualité de vie pour tous les citoyens des quatre coins du globe.

J'aimerais remercier toutes les personnes qui ont contribué au présent rapport. Il faut compter sur des efforts conjugués de bon nombre de Canadiens et Canadiennes soucieux de leur environnement pour que la prévention de la pollution puisse devenir une réalité environnementale, économique et sociale.

La prévention de la pollution constitue une priorité pour l'ensemble des ministères et organismes fédéraux. Ce rapport fait état de la collaboration constante entre les ministères et de rendre compte du succès du gouvernement en matière de prévention de la pollution dans le cadre de ses propres opérations. Les histoires à succès figurant dans ce rapport témoignent également de l'engagement d'autres paliers de gouvernement, du secteur privé et du public canadien qui contribuent aux stratégies de prévention de la pollution.

Progrès en matière de prévention de la pollution 1999-2000 présente des projets qui viennent d'être amorcés, ou bien ont atteint un jalon important, sur une période allant d'avril 1999 à mars 2000. Ce travail a été salué par le Secrétaire du Conseil du Trésor qui, dans son rapport de 2000 déposé au Parlement, *Une gestion axée sur les résultats 2000*, vante les mérites de *Progrès en matière de prévention de la pollution* présente comme un excellent modèle de gestion axée sur les résultats.

Les investissements canadiens en recherche et développement ont contribué à l'élaboration de techniques novatrices et efficaces de prévention de la pollution ici comme à l'étranger. Le Conseil national de recherche, Ressources naturelles Canada, Industrie Canada ainsi qu'Environnement Canada ont offert un appui technique et financier afin de commercialiser et de mettre en marché les technologies canadiennes de prévention de la pollution. Ce programme national est assorti de projets bilatéraux avec d'autres pays qui sont financés par l'Agence canadienne de développement international et d'autres sources.




David Anderson

L'honorable David Anderson, C.P., député
Ministre de l'Environnement

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EN MATIÈRE DE PRÉVENTION
DE LA POLLUTION

PROGRES

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Quatrième RAPPORT ANNUEL
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Message From the Minister of the Environment

It is my pleasure to present the sixth annual report of the Government of Canada's Pollution Prevention Coordinating Committee (P2C2) - *Progress in Pollution Prevention 2000-2001*.

Pollution prevention is the cornerstone of the *Canadian Environmental Protection Act, 1999* (CEPA 1999). It represents the Government of Canada's first order of defense against pollution and our most favorable option in achieving sustainable growth. Through implementation of pollution prevention concepts and principles, all Canadians can share in the protection of the environment and their health. The positive daily actions and decisions taken by Canadians can make a significant difference in sustaining our environment as a whole.

In 1995, the Government of Canada committed itself to the implementation of pollution prevention within its own government operations, cooperative pollution prevention activities with other levels of government and industry, and the demonstration of leadership and innovative pollution prevention actions with all Canadians, as well as with the international community. Since that time, the Government of Canada has reported to you annually on progress in meeting this commitment. This year's "*Progress in Pollution Prevention 2000-2001*" highlights achievements for projects that either began or reached a major milestone in the period of April 2000 to March 2001.

The Government of Canada has made important progress in promoting pollution prevention within its departments and in engaging new partners to achieve environmental sustainability. For example, over 150 projects, funded by the Climate Change Action Fund program, contributed to raise the awareness of Canadians concerning climate change and to promote action to reduce greenhouse gas emissions. Also, the vehicle industry has achieved reduction of over 400,000 tons of toxic and other substances as a result of a pollution prevention initiative. This year's report illustrates the dedication and commitment that federal departments have made to the pursuit and adoption of a preventive environmental ethic in their own operations.

The breadth of this year's report acknowledges that the positive daily actions taken by all Canadians can make a difference in contributing to a cleaner and healthier environment.



A handwritten signature in black ink that reads "David Anderson".

Honourable David Anderson, P.C. MP
Minister of the Environment

Executive Summary

The federal government continues with its commitment to incorporate pollution prevention principles and practices into decisions made throughout Canadian society.

Progress in Pollution Prevention 2000–2001 showcases the federal government's achievements in incorporating pollution prevention into its own activities and those of its partners. This is the sixth annual report prepared by the federal Pollution Prevention Coordinating Committee. The report focuses on the progress made in the year ending March 31, 2001, against the goals stated in the federal pollution prevention strategy and action plan (*Pollution Prevention — A Federal Strategy for Action*) and demonstrates the federal government's leadership and commitment to pollution prevention.

Pollution Prevention — A Federal Strategy for Action sets priorities for action based on five target sectors: federal departments and agencies, other orders of government, the private sector, individual Canadians and the international community. By directing efforts towards preventing pollution instead of managing pollution after it has been created, the federal strategy works towards the ultimate goal of sustainable development.

Changes to the Format of the Report

This year's report has been designed to more clearly show the linkages to programs and initiatives undertaken in pollution prevention with the federal pollution prevention strategy and action plan. In addition, to better showcase the progress that has been made over the years, these programs and initiatives have been labelled as either "Update" for those items that have been reported in previous years or "New" for items appearing in this report for the first time. *Progress in Pollution Prevention 2000–2001* also features "upcoming projects" that were initiated in this reported fiscal year, but where the majority of work will occur in coming years.

This Year's Accomplishments

The Government of Canada is advancing pollution prevention through strengthening legislation and regulations, integrating the pollution prevention approach into current programs, designing guidelines and codes of practice for industrial operations, working in

partnership with the private sector, other orders of government and communities, supporting non-regulatory initiatives and participating in developing and implementing international agreements.

Progress within the Federal Government

The federal government continues to strengthen its capacity to make pollution prevention a part of its strategies, programs and projects that protect the environment and health of all Canadians.

Managing the *Canadian Environmental Protection Act, 1999* (CEPA 1999) requirements for toxic substances remained a key focus. The CEPA Environmental Registry was unveiled to encourage and support public participation by facilitating access to documents arising from the administration of the Act.

In greening its own operations, federal departments took prevention-based measures to advance progress in waste reduction and management, water and energy conservation, vehicle fleet management, procurement, land management, training and awareness and behaviour change. Collaborative partnerships, such as the Sustainable Development in Government Operations Committee, encouraged the sharing of resources and resulted in more effective and stronger national programs. To encourage environmental decision-making in service delivery, several departments integrated pollution prevention principles into their programs.

Progress with Other Governments

Close cooperation between all forms of government in Canada signifies the continuing importance of environmental protection.

Work continued on the development of regional or Canada-wide strategies for the management of pollutants and toxic substances through the Canadian Council of Ministers of the Environment. Federal and provincial partners collectively took action on a variety of environmental issues, including wastewater, air quality and energy efficiency.

Executive Summary (continued)

Activities with local governments, such as the City of Toronto, Halifax Regional Municipality and various communities in the Vancouver area, demonstrated how effective action can be when performed locally.

Progress with the Private Sector

Investment in innovation, efficiency and entrepreneurship can successfully promote pollution prevention, as demonstrated through sector-targeted programs.

Several federal departments have been involved in the success of voluntary agreements and programs that focus on industries such as automotive manufacturing, chemical processing, vinyl production and metal finishing. Providing resources towards the delivery of demonstration projects, guidance materials and training programs further advances the adoption of the preventive approach in such sectors as agriculture, dry cleaning, health care, mining, printing, tourism and furniture making.

Financial support was made available to various sectors to advance technological innovation in support of the federal government's commitment to clean air and water. Support remained for delivering training to small and medium-sized businesses on such topics as spill prevention and environmental management systems.

Progress with the Canadian Public

Using improved information tools and resources, Canadians are increasingly taking community-based action in response to environmental challenges.

Expansion occurred in the amount of information available through Internet tools such as the Canadian Pollution Prevention Information Clearinghouse, Canadian Pollution Prevention Success Stories and AutoSmart. With the support of the EcoAction fund, communities across Canada were able to address issues such as pest management, oil spill prevention and wood stove purchasing.



Environment Canada's National Office of Pollution Prevention coordinated the participation of youth representatives at the 2001 Canadian Pollution Prevention Roundtable.

Participation in the Go for Green Active Transportation program resulted in an increased level of awareness of how personal choices reduce the impact made on the environment. Canadian youth were engaged in environmental discussions with decision-makers and pollution prevention practitioners at various roundtables and international forums.

Executive Summary (continued)

WORKING TOWARDS RESULTS: POLLUTION PREVENTION — A FEDERAL STRATEGY FOR ACTION

Target sector	Strategy goal	Examples from 2000–2001
Federal government	Institutionalize pollution prevention across all federal government activities	<ul style="list-style-type: none"> • <i>Canadian Environmental Protection Act, 1999</i> • Greening of government operations • Environment Canada's Pollution Prevention Team project coordination • Changes to Atlantic Canada Opportunities Agency's guidelines for program delivery
Other governments	Foster a national pollution prevention effort	<ul style="list-style-type: none"> • Canadian Council of Ministers of the Environment's Canada-wide Standards • Memorandum of Understanding between Environment Canada and Nova Scotia Department of Environment • British Columbia pollution prevention planning process • Energy Solutions Centre in City of Whitehorse
Private sector	Achieve a climate in which pollution prevention becomes a major consideration in private sector activities	<ul style="list-style-type: none"> • Voluntary agreements and programs such as Canadian Vehicle Manufacturing Pollution Prevention Project, Metal Finishing Industry Project and Canadian Industry Program for Energy Conservation • Demonstration projects, guidance materials and training in best management practices for agriculture, dry cleaning, health care, mining, printing, tourism and the wood furniture sector • Technological advancement and support from Technology Partnerships Canada and various federal economic development agencies • Commitment to training and improvement in small and medium-sized businesses through initiatives such as EnviroClub™
All Canadians	Provide access to the information and tools necessary to implement pollution prevention practices	<ul style="list-style-type: none"> • Go for Green Active Transportation initiative • EcoAction fund • Canadian Pollution Prevention Information Clearinghouse and Canadian Pollution Prevention Success Stories • Auto\$mart Program • Youth access to roundtables and international forums
International community	Participate in international pollution prevention initiatives	<ul style="list-style-type: none"> • International Pollution Prevention Summit • Funding to address persistent organic pollutants • Annex to the Canada–U.S. Air Quality Agreement • Technical assistance on cleaner production, renewable energy sources and ecological farming practices

Executive Summary (continued)

Progress with the International Community

Canada continues to provide leadership and support abroad for the promotion of pollution prevention through international agreements, scientific cooperation and technology transfer.

The first International Pollution Prevention Summit held in Montreal provided an opportunity for national and regional roundtables and cleaner production networks from around the world to explore how pollution prevention could be better understood and implemented.

Work continued through the negotiation of international agreements that target smog and persistent organic pollutants. Several federal departments delivered technical assistance on cleaner production, renewable energy sources and ecological farming practices to countries within Asia and the Americas.

Moving Forward

Progress in Pollution Prevention 2000–2001 demonstrates that the practice of pollution prevention is expanding across the targeted sectors. It also shows that pollution prevention techniques and processes are evolving to address national and global challenges.

The pollution prevention successes achieved in 2000–2001 leave the Government of Canada well positioned to continue promoting pollution prevention as the preferred method for protecting the environment and improving economic competitiveness.

*On the Internet, view this report
at <http://www.ec.gc.ca/p2progress>.*

The Pollution Prevention Framework

The legislation and policies that form the federal government's commitment to protect human health and the environment establish a strong pollution prevention framework

POLLUTION PREVENTION PRACTICES AND TECHNIQUES

- Conserving natural resources and using them efficiently
- Substituting "clean" and "green" materials and feedstock
- Thinking "green" for purchasing, product design and reformulation, process changes, equipment modifications and production
- Reducing inputs and waste; on-site reuse and recycling
- Training everyone in pollution prevention techniques
- Introducing cleaner operating practices

The federal government defines pollution prevention as "the use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste, and reduce overall risk to human health or the environment."

The goal of pollution prevention is to eliminate the causes of pollution rather than treat the waste generated. Pollution prevention involves continuous improvement through design, technical, operational and behavioural changes. It also encourages transformations that are likely to lead to lower production costs, increased efficiencies and more effective protection of the environment.

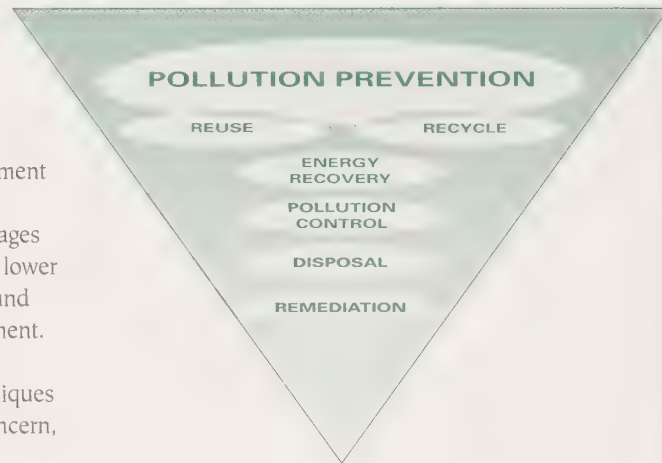
Pollution prevention practices and techniques focus on such areas as substances of concern, efficient use and conservation of natural resources, reuse and recycling on-site, materials and feedstock substitution, operating efficiencies, training, procurement techniques, product design, process changes, product reformulation, equipment modifications and clean production.

Pollution prevention:

- minimizes or avoids the creation of pollutants;
- prevents the transfer of pollutants from one medium to another;
- accelerates the reduction and/or elimination of pollutants;
- minimizes health risks;
- promotes the development of source reduction technologies;
- uses energy, materials and resources more efficiently;
- reduces the need for costly enforcement;
- limits future liability with greater certainty;
- recognizes that waste is a cost that can be reduced;
- avoids costly cleanup in the future; and
- promotes a more competitive economy.

Federal Pollution Prevention Strategy
Pollution Prevention — A Federal Strategy for Action is the Government of Canada's policy

THE ENVIRONMENTAL PROTECTION HIERARCHY



framework for advancing pollution prevention as the priority approach to environmental protection. Approved by Cabinet in June 1995, the strategy elaborates on government policy and sets priorities for action based on five goals involving partnerships with federal departments and agencies, other orders of government, the private sector, individual Canadians and the international community.

The goals of the federal pollution prevention strategy include the following:

- *Within the federal government:* Institutionalize pollution prevention across all federal government activities
- *With other governments:* Foster a national pollution prevention effort
- *With the private sector:* Achieve a climate in which pollution prevention becomes a major consideration in industrial activities
- *With all Canadians:* Provide access to the information and tools necessary to implement pollution prevention practices
- *With the international community:* Participate in international pollution prevention initiatives.

Section 1: The Pollution Prevention Framework (continued)

Federal Pollution Prevention Coordinating Committee

The federal Pollution Prevention Coordinating Committee was established in 1992 and is chaired by Environment Canada. It collectively promotes the implementation of *Pollution Prevention — A Federal Strategy for Action* by encouraging the practice of pollution prevention throughout the federal government and with the federal government's clients. The current committee membership, listed in Appendix I, includes representatives from 11 federal departments:

- Environment Canada
- Agriculture and Agri-Food Canada
- Canadian International Development Agency
- Fisheries and Oceans Canada
- Foreign Affairs and International Trade
- Health Canada
- Industry Canada
- National Defence
- Natural Resources Canada
- Public Works and Government Services Canada
- Transport Canada.

Progress in Pollution Prevention, the annual report of the Pollution Prevention Coordinating Committee, was first published in 1996. This annual report informs Canadians and government officials of national progress in pollution prevention, highlighting pollution prevention achievements and successes across the country. By relating progress to the five target sectors of the federal pollution prevention strategy and action plan, this report provides a framework for monitoring performance, profiling federal environmental successes and assessing progress made towards the goals of the federal strategy.

Including the members of the Pollution Prevention Coordinating Committee, 17 federal departments and agencies contributed to this sixth annual report (see Appendix II), emphasizing the continued integration of pollution prevention across the federal government and demonstrating federal interdepartmental collaboration. Because of its example as a framework for monitoring

performance and reporting on results achieved, *Progress in Pollution Prevention* has been featured in the Treasury Board Secretariat's report *Managing for Results 2000* as an excellent example of results-based reporting.

National Commitment to Pollution Prevention

Within Canada, federal, provincial, territorial, municipal and Aboriginal governments share jurisdiction for the environment. The Canadian Council of Ministers of the Environment (CCME) is Canada's premier forum for intergovernmental discussion and action on environmental issues. The CCME comprises environment ministers from the federal, provincial and territorial governments with a mandate to improve environmental protection and promote sustainable development in Canada.

In 1993, the CCME contributed to the evolution of pollution prevention in Canada by releasing the report entitled *National Commitment to Pollution Prevention*. In May 1996, the CCME again addressed the issue by releasing *A Strategy to Fulfill the CCME Commitment to Pollution Prevention*. This strategy sets out a shared vision, mission and goal statement, as well as guiding principles for the implementation of pollution prevention by all provinces and territories and the federal government. As part of the strategy,

the CCME jurisdictions adopted a common definition of pollution prevention: "The use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and wastes, at the source." As stated in the CCME strategy, pollution prevention is a shared responsibility among governments, individuals and industrial, commercial, institutional and community sectors.

To show its support for pollution prevention, the CCME presents pollution prevention awards annually and maintains a Pollution Prevention Network. The Network serves as a forum for information exchange amongst its members on an ad hoc basis and provides technical support to the CCME Pollution Prevention Awards Program.

The Government of Canada, with stakeholders in the private sector, environmental non-government organizations, communities, labour and academia, is putting pollution prevention into practice through a mix of regulatory, non-regulatory and economic instruments. This includes modernizing legislation and regulations, managing national programs, developing guidelines and codes of practice for industrial operations, establishing Canada-wide Standards for specific substances, supporting voluntary initiatives, ensuring accessibility of tools and information and implementing international agreements.

KEY POLLUTION PREVENTION POLICIES AND REGULATIONS

<i>Canadian Environmental Protection Act, 1999</i>	2000
<i>Sustainable Development in Government Operations: A Coordinated Approach</i>	2000
<i>CCME Policy for the Management of Toxic Substances</i>	1995
<i>A Strategy to Fulfill the CCME Commitment to Pollution Prevention</i>	1996
<i>Pollution Prevention — A Federal Strategy for Action</i>	1996
<i>Designing Government Operations Policy</i>	1996
<i>A Joint Government Action Plan on Sustainable Development Strategies</i>	1996
<i>Toxic Substances Management Policy</i>	1996
<i>CCME National Commitment to Pollution Prevention</i>	1993
<i>Canadian Environmental Protection Act (1985)</i>	1985

Progress within the Federal Government

Federal pollution prevention strategy goal: Institutionalize pollution prevention across all federal government activities

FEDERAL CLIMATE CHANGE COMMITMENT

In 1995, the Government of Canada committed to "getting its own house in order" by reducing its operational greenhouse gas emissions by at least 20% from 1990 levels by the year 2005. In 1997, Canada agreed to targets to reduce greenhouse gas emissions set out in the Kyoto Protocol. The Federal Action Plan 2000 on Climate Change strengthened the government's leadership role by increasing the target to 31% below 1990 levels by 2010.

To date, the government has already successfully reduced its emissions by over 19% and will continue to reduce emissions by properly managing forests and lands and encouraging innovation and leadership in areas such as energy efficiency and fleet management. Led by Natural Resources Canada, the Federal Buildings Initiative and FleetWise Program have played important roles in helping achieve current reductions. To find out more, visit the Government of Canada's Climate Change website at <http://climatechange.gc.ca/english/index.shtml>.

Legislation and Regulations

The web-based CEPA Environmental Registry, mandated under Section 12 of the *Canadian Environmental Protection Act, 1999* (CEPA 1999), is a source of public information relating to activities under the Act. The Registry's primary objective is to encourage and support public participation in the environmental decision-making process by facilitating access to documents arising from the administration of the Act. To view CEPA-related public documents such as regulations, notices, orders, policies, agreements and current toxic substances lists, visit the CEPA Environmental Registry at <http://www.ec.gc.ca/CEPARegistry>.

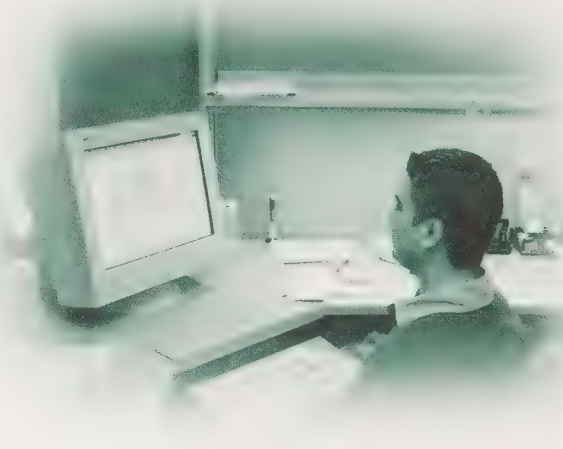
Environment Canada published three documents to support the implementation of the pollution prevention planning provisions of Part 4 of CEPA 1999:

- Guidelines for the Implementation of the Pollution Prevention Planning Provisions of Part 4 of the *Canadian Environmental Protection Act, 1999* (February 2001);
- Pollution Prevention Planning Provisions of Part 4 of the *Canadian Environmental Protection Act, 1999*: Frequently Asked Questions (February 2001); and
- Pollution Prevention Planning Handbook (May 2001).

These documents further explain the provisions of Part 4 and offer guidance to their appropriate use, as well as guidance in the methodology of pollution prevention planning for industry. These documents can be found at <http://www.ec.gc.ca/nopp/cepa-lcpe/index.cfm>.

In addition to preventing pollution from ongoing situations (Part 4), CEPA 1999 also attempts to prevent pollution from spills or other sudden releases (Part 8). In support of the environmental emergency planning provisions of Part 8 of CEPA 1999, Environment Canada published *Implementation Guidelines for Canadian Environmental Protection Act*,

The CEPA Environmental Registry encourages and supports public participation in environmental decision-making by facilitating access to documents arising from the administration of CEPA 1999.



1999, *Section 199, Authorities for Requiring Environmental Emergency Plans*. These guidelines explain the provisions and the requirements of those subject to this section of CEPA 1999. An environmental emergency plan outlines a facility's procedures that reduce the frequency and amount of toxic substances released through emergency prevention, preparedness, response and recovery measures. These guidelines can be found at <http://www.ec.gc.ca/CEPARegistry/plans/E2.cfm>.

Toxic Substances

National Defence has developed a screening process to identify and eliminate high-risk hazardous products. To date, National Defence has identified 106 such products. In 2000–2001, 17% of these products were eliminated from use through pollution prevention techniques. Since 1998–1999, the overall reduction has been over 50%.

To prevent the spread of foot and mouth disease to Canadian livestock, the Canadian Food Inspection Agency is ensuring that all passengers entering Canada from countries with the disease disinfect their shoes by walking across a carpet soaked with a disinfectant solution. The traditional

Section 2: Progress within the Federal Government (continued)

TOXIC SUBSTANCES MANAGEMENT

Under the *Canadian Environmental Protection Act, 1999* (CEPA 1999), the Ministers of Environment and Health have the authority to declare substances "toxic" if they pose a significant risk to the health of Canadians or to the environment. The Toxic Substances Management Policy outlines the federal government's risk management process for toxic substances based on two key objectives: virtual elimination from the environment of toxic substances that are persistent, bioaccumulative and primarily the result of human activity (Track 1), and life cycle management of other toxic substances and substances of concern to prevent or minimize their release into the environment (Track 2). Environment Canada applies a pollution prevention approach and the precautionary principle to the management of both Track 1 and Track 2 substances. Environment Canada is implementing action plans to virtually eliminate the most dangerous toxic substances, and domestic action has already been taken to limit or ban the production, use, importation or release of these substances.

Forty-four substances on the first Priority Substances List (PSL1) were assessed under the Priority Substances Assessment Program by 1994. Of these 44, 25 were found to be toxic. Management options, developed in consultation with stakeholders through the Strategic Options Process, have already been adopted for a number of toxic substances (see table below), and work is proceeding on those remaining.

TARGETED SECTORS

STATUS IN 2000-2001

Dry cleaning (tetrachloroethylene)	<ul style="list-style-type: none"> Regulations under development
Solvent degreasing (tetrachloroethylene, trichloroethylene)	<ul style="list-style-type: none"> Regulations under development
Coal-fired power generation (inorganic arsenic compounds, inorganic cadmium compounds; oxidic, sulphidic and soluble inorganic nickel compounds)	<ul style="list-style-type: none"> This sector also contributes to the release of dioxins and furans, particulate matter, benzene and smog; all are Canada-wide Standard substances in the negotiation process
Steel manufacturing (benzene; inorganic arsenic compounds, inorganic cadmium compounds, inorganic fluorides, oxidic, sulphidic and soluble inorganic nickel compounds, polycyclic aromatic hydrocarbons, dioxins/furans)	<ul style="list-style-type: none"> Codes of Practice scheduled for publication Canada-wide Standard for dioxins and furans in negotiation process
Base metal smelting (inorganic arsenic compounds; inorganic cadmium compounds, oxidic, sulphidic and soluble inorganic nickel compounds)	<ul style="list-style-type: none"> Codes of Practice and Environmental Management Plans under development
Metal finishing sector (hexavalent chromium compounds)	<ul style="list-style-type: none"> Proposed regulations
Wood preservation (hexavalent chromium compounds; creosote-contaminated sites; dioxins/furans)	<ul style="list-style-type: none"> Code of Practice being implemented

TARGETED SUBSTANCES

STATUS IN 2000-2001

Benzidine	<ul style="list-style-type: none"> Proposed regulations
3,3'-Dichlorobenzidine	<ul style="list-style-type: none"> Agreement with one facility
Refractory ceramic fibres	<ul style="list-style-type: none"> Environmental Performance Agreement under development
Dichloromethane	<ul style="list-style-type: none"> Draft CEPA 1999 section 56 pollution prevention planning notice
Hexachlorobenzene	<ul style="list-style-type: none"> Proposed regulations
Bis (2-ethylhexyl) phthalate	<ul style="list-style-type: none"> Additional studies are recommended
1,2-Dichloroethane	<ul style="list-style-type: none"> Environmental Performance Agreement under development
Short-chain chlorinated paraffins	<ul style="list-style-type: none"> Risk management pending — awaiting results of further assessment

A complete list of the 25 substances declared toxic under CEPA 1999 is available at <http://www.ec.gc.ca/cepa/eng/assessment/assessment.asp>. For more information on the status of the development of action plans for each of these substances, please contact the nearest Environment Canada office.

A second Priority Substances List (PSL2) was published in 1995 with 25 additional substances. During 2000-2001, departments continued to monitor the PSL2 substances and initiated development of risk management strategies. Actions on PSL2 substances will be carried out in a multi-pollutant approach where possible, targeting groups of substances or taking a sector-specific approach. Specific risk management strategies will be released for consultation that will present the approach undertaken, the proposed monitoring and the proposed risk management tools. Consultation will also be held on the development of the proposed risk management tools.

Section 2: Progress within the Federal Government (continued)

The *Canadian Environmental Assessment Act* (CEAA) promotes pollution prevention practices by ensuring that environmental considerations are incorporated early in the decision-making process. The Atlantic Canada Opportunities Agency and the Canadian Food Inspection Agency have incorporated environmental assessment — a key to pollution prevention — into their policy frameworks and have adopted guidelines based on CEAA. Similarly, the Department of Foreign Affairs and International Trade released a framework for conducting environmental assessments of trade negotiations.

disinfectant is a carcinogenic phenol compound that accumulates in the food chain. Staff at Mirabel, Dorval and Quebec airports implemented procedures to minimize the environmental impact of the used disinfectant. The traditional disinfectant was replaced with a non-carcinogenic product that decomposes into sulphur and potassium and poses little or no threat to the sewage system or the environment.

An Environment Canada research group at the St. Lawrence Centre in Quebec has developed a protocol for capturing and tagging fish that replaces anaesthetics and sedatives with a natural substance. This natural substance, oil of cloves, is non-carcinogenic and non-mutagenic and produces no chemical or toxic waste. Oil of cloves costs less than most anaesthetic agents. For instance, the average cost of purchasing commonly used anaesthetics and sedatives ranges from \$9 to \$475 for 150 days of tagging, while the average cost of using oil of cloves is \$20 for 150 days of work.

Clean Air

The National Pollutant Release Inventory (NPRI) provides Canadians with access to pollutant release information for facilities located in their communities. To accelerate public access to NPRI data, Environment Canada released the 1999 data electronically in December 2000. The NPRI also supports pollution prevention initiatives by providing information that assists in identifying priorities for action, encourages industry initiatives and allows for tracking of progress in reducing pollutants. For progress tracking, facilities have been required to report their pollution prevention activities for NPRI-listed substances since 1997. Approximately 33% of all pollution prevention activity reported in 1999 was in the form of “good operating practices or training.” “Spill and leak prevention” is the second most popular approach, at 18%. For more information on the NPRI, visit <http://www.ec.gc.ca/pdb/npri>.

The Canadian Food Inspection Agency took an active part in the Ontario Region Corporate Smog Action Plan initiated by Environment Canada, Health Canada and Public Works and Government Services Canada. During a smog alert, the Agency promotes a number of

internal actions, including suspension of lawn-mowing activities and of the use of oil-based paints, solvents and cleaners; restriction of gasoline-powered equipment use; and teleconferencing activities instead of driving to meetings.

Sustainable Development and Environmental Management Systems

The 1995 amendments to the *Auditor General Act* require a number of federal departments to table a sustainable development strategy in Parliament outlining departmental goals for integrating sustainable development into their policies, programs and operations. Departments are required to update their strategies every three years. Environment Canada has led federal efforts through the Interdepartmental Network on Sustainable Development Strategies and coordinated the tabling of updated sustainable development strategies for all federal departments and agencies in February 2001. Departments concentrated their efforts on updating the 1997 strategies using lessons learned from the implementation of the first round of strategies.

INTERDEPARTMENTAL ARRANGEMENTS ON POLLUTION PREVENTION AND ENVIRONMENTAL MANAGEMENT

Federal departments and agencies often share interests, mandates or responsibilities for government operations and sustainable development. Participation in interdepartmental groups is essential for developing common tools, coordinating activities and sharing information.


Federal interdepartmental mechanisms in place to promote coordination on environmental management activities include:

- Deputy Ministers' Sustainable Development Coordinating Committee
- Interdepartmental Network on Sustainable Development Strategies
- Federal Committee on Environmental Management Systems
- Sustainable Development in Government Operations Committee
- Pollution Prevention Coordinating Committee
- regional federal councils.

Section 2: Progress within the Federal Government (continued)

An environmental management system (EMS) provides a systematic framework to help an organization manage its environmental obligations and document, evaluate and communicate its environmental performance. Co-chaired by Natural Resources Canada and Environment Canada, the Federal Committee on Environmental Management Systems continued to promote the effective implementation of departmental EMSs. Some examples of effective implementation appear below:

- The Department of Foreign Affairs and International Trade implemented an EMS to review and improve its environmental performance in Canada and abroad. The department adopted environmental targets and performance measures for 11 priority areas and continued its collection of baseline data. In July 2000, an Environmental Management Policy was approved that includes a commitment to incorporate principles of pollution prevention and adopt best environmental management practices.
- National Defence's 25 Canadian Forces Supply Depot (25 CFSD) in Montreal maintained an ISO 14001 EMS certification. The development of an EMS at 25 CFSD resulted in the implementation of procedures and controls to reduce the risk of spills and leaks, along with the examination of energy consumption, packaging, goods procurement and wastewater management. During 2000–2001, 25 CFSD reused 5,045 incoming pallets for outgoing shipments, saving over \$64,000. Similarly, savings in the reuse of crates, fast packs and other packing totalled \$113,500.
- In January 2001, Environment Canada expanded its ISO 14001 EMS pilot project to include the Edmonton Warehouse in Prairie and Northern Region. An implementation manual has been developed to accelerate future implementations.
- The Canadian Food Inspection Agency developed a National EMS



In the event of a smog alert, the Canadian Food Inspection Agency promotes a number of internal actions including suspension of mowing activities and the use of oil-based paints, solvents and cleaners.

Implementation Strategy based on ISO 14001. The EMS received senior management approval in February 2001.

- Citizenship and Immigration Canada (CIC) has made commitments to vehicle fleet management, green procurement and facilities management in its EMS Action Plan. CIC will be consulting with other federal departments to exchange information on existing pollution prevention policies and greening of government activities.

Departmental Policy Integration

In December 2000, Environment Canada—Atlantic Region adopted a pollution prevention strategy intended to make pollution prevention increasingly the strategy of choice for its staff and Atlantic Canadians when making decisions that affect the region's environment and economy. A working group was developed to ensure that staff are familiar with the concepts of pollution prevention, to identify priority issues through consultations and to prepare a plan assisting all staff and managers in integrating pollution prevention into regional program activities.

The Atlantic Canada Opportunities Agency, with assistance from Environment Canada, examined its decision-making guidelines and identified opportunities for integrating pollution prevention concepts into its program delivery. As a result of this work, it altered client brochures and internal project evaluation documents to reflect eco-efficiency approaches.

Now in its third year, the Environment Canada Pollution Prevention Team, composed of regional and headquarters staff, coordinated the adoption of pilot regional initiatives by other regional and national campaigns. Examples include CleanPrint Canada, Camp Green, Canada! and small and medium-sized enterprise pollution prevention support.

Section 2: Progress within the Federal Government (continued)

GREENING GOVERNMENT OPERATIONS

Released in 2000, *Sustainable Development in Government Operations: A Coordinated Approach* builds on the 1995 *Guide to Green Government*, which offers a framework for federal departments preparing their sustainable development strategies. The new document builds on best practices as well as specific performance measures. The interdepartmental Committee on Performance Measurement for Sustainable Government

Operations coordinates the development of common reporting indicators that provide an overview of how well the federal government is progressing towards bringing sustainable development considerations into its operations. In the future, a recommended reporting framework is expected. Shown below are examples of pollution prevention and other environmental protection actions taken in 2000–2001 to "green" federal departments and agencies.

WASTE MANAGEMENT

- Waste audits performed and updated annually
- Waste reduction action plans developed and implemented
- Recycling system in place / composting where feasible
- Hazardous waste collected centrally, stored and disposed of safely

ACTIONS TAKEN

Atlantic Canada Opportunities Agency (ACOA) converted 35 common forms to electronic format. ACOA promotes double-sided printing and photocopying to its entire staff.

Western Economic Diversification Canada (WD) and ACOA donated a total of 388 surplus desktop computers (110 from WD and 278 from ACOA) and software to the "Computers for Schools" program.

Environment Canada — Corporate Services replaced 47 mercury manometers. Since 1995, 92% (733 of 800) of mercury manometers have been replaced. The Meteorological Service of Canada undertook the replacement of 65 mercury barometers. In both cases, the mercury was recycled.

WATER/ENERGY CONSERVATION

- Audits performed
- Conservation plans developed and implemented
- Water/energy-saving equipment and devices specified for future purchases, e.g., water-efficient fixtures, energy-efficient lighting and water heating

ACTIONS TAKEN

Canadian Forces Base Gagetown reduced treated water consumption by 12% from 1989–1990 levels. This was achieved through the implementation of reduction plans aimed at minimizing water use.

VEHICLE FLEET MANAGEMENT

- Fuel efficiency maximized and alternative fuels used to conserve energy and reduce emissions
- Number of vehicles for departmental use reduced
- Emission testing and regular maintenance performed
- All used fluids and oils recycled

ACTIONS TAKEN

Agriculture and Agri-Food Canada (AAFC) continued to reduce emissions by introducing alternative fuel vehicles and small electric carts and pieces of farm equipment. Under the AAFC Storage Management Tank Program, all new fuel storage tanks will be compatible with 100% ethanol fuel. Ethanol will be used mostly to fuel vehicles.

Departments such as Transport Canada, Natural Resources Canada, National Defence, Environment Canada and the Royal Canadian Mounted Police reduced their departmental vehicle fleet size and integrated more alternative fuel vehicles into their vehicle inventories. The Minister of the Environment currently uses an alternative fuel vehicle to travel within the National Capital Region.

PROCUREMENT

- "Green" clauses included in service and supply contracts
- Harmful chemical usage minimized (e.g., cleaning products, solvents, oil-based paints)

ACTIONS TAKEN

Health Canada employees in Ottawa have been asked to purchase recycled content copier paper with 30% post-consumer waste instead of virgin paper. Based on the preceding year's paper purchases, recycled paper will result in:

- 1,620 trees being saved; and
- 1,776 kilograms less air pollution.

Health Canada also provided training and awareness materials on green purchasing through its Corporate Services Branch and is a member of the Manitoba Green Procurement Network, a method of sharing information with the material management community. Similarly, 271 Public Works and Government Services Canada (PWGSC) employees received green procurement training; in total, 17.2% of the \$1 million of PWGSC purchases made through the Buying Power 2000 initiative were classified as "green."

Section 2: Progress within the Federal Government (continued)

TRAINING AND AWARENESS

- Staff trained in methods and informed of opportunities to conserve water and energy, reduce waste and make environmentally sensitive purchasing decisions
- Raising employees' awareness to optimize pollution prevention in their activities

REMEDIAL ACTIONS

- Equipment using chlorofluorocarbons and halons identified and alternatives introduced wherever possible
- Equipment containing polychlorinated biphenyls (PCBs) are phased out and PCBs not in use are securely stored
- Fuel storage tanks meet the new guidelines and are checked regularly for leakage

ACTIONS TAKEN

Environmental Action Plan (EAP) Online is a web-based tool available for Human Resources Development Canada. EAP Online contains information on government initiatives and training as well as general environmental information.

ACTIONS TAKEN

PWGSC continued to achieve a downward trend in the ozone-depleting potential and global warming potential of chillers in the Crown-owned PWGSC inventory. Refrigerant losses were 2.11%, well within the targeted maximum of 4%. There are only two PWGSC-owned halon systems left, seven were removed.

Waste Reduction

National Defence has reduced the amount of solid waste sent to landfill by 17% from 1999–2000 levels. Some of this reduction was through increased waste diversion. For instance, Canadian Forces Base Borden has increased reuse and recycling by diverting 11,911 tonnes of asphalt, concrete and gravel, 19 tonnes of corrugated cardboard, 10 tonnes of compost and 133 tonnes of metal and white goods from its landfill.

During 2000–2001, 39 of 49 construction and demolition projects (over 2,000 cubic metres in size) carried out within National Defence included waste reduction plans. Similarly, Public Works and Government Services Canada conducted waste audits and diversion activities when undertaking construction, renovation or demolition projects for federal departments such as Health Canada.

Human Resources Development Canada headquarters set a target to reduce the waste sent to landfill by 50% over 1988 levels by March 31, 2001. Waste audits at headquarters indicated a reduction of approximately 70% over 1988 levels. Many federal departments have achieved similar results through the implementation of the "No Waste Program," "Papersave Program" and/or ongoing employee awareness initiatives. For example, solid waste diversion services continued to be offered to tenants in Public Works and Government Services Canada Crown-owned facilities.

At Canadian Forces Base Gagetown, the Eco-Waste Centre houses the second largest in-vessel (enclosed) composter in North America. The compost generated by the Centre offsets the need to purchase fertilizer and pesticides. A second in-vessel composter has been delivered and will be installed at the Centre. Future plans for the Eco-Waste Centre include using the compost for bioremediation of contaminated Absorbal, soil and energetics (unreacted explosives and propellants).

Energy Efficiency/Water Conservation

The Federal Buildings Initiative (FBI), led by Natural Resources Canada, is a voluntary program that helps federal departments and agencies improve the energy efficiency and water efficiency of their facilities. To date, FBI-type contracts with private sector energy service companies have financed retrofits in more than 6,500 federal buildings, resulting in annual energy savings of about \$26 million, significant reductions in greenhouse gas emissions and a healthier, more comfortable work environment. It is expected that these FBI projects will result in a reduction of 16 tonnes of emissions per year from new projects.

As the primary custodian of Crown-owned property, Public Works and Government Services Canada has a significant role to play in greenhouse gas reduction and resource conservation. Energy and water conservation initiatives have already been implemented in more than 60% of its

Crown-owned inventory by floor area, and more work is targeted.

Canadian Forces Base Gagetown replaced oil with natural gas to fire its central heating plant. An annual reduction of 14% or 8,000 tonnes of carbon dioxide equivalent emissions is expected, as well as significant reductions in emissions of sulphur dioxide, a major acid rain precursor. This project began in December 2000, and the new system became operational on April 1, 2001.

Health Canada introduced several energy efficiency initiatives in 2000–2001. The Atlantic Region constructed three new facilities heated by heat pumps. Several facilities in the Alberta, Northwest Territories and Quebec regions now contain more energy-efficient lighting and automated energy systems regulated by internal conditions. The Ontario Region First Nations' health centres reduced energy consumption (by 60%) as well as carbon dioxide emissions by investing in two geothermal units. There are plans to install three more units at other facilities.

Section 2: Progress within the Federal Government (continued)

Operations/Facility Management

National Defence has been active in the removal and replacement of halon fire-extinguishing systems from its infrastructure. In 2000–2001, the last known infrastructure-related use of halon was removed, resulting in 100% elimination. Overall, the department has recovered, recycled and safely stored an estimated 103,400 kilograms of halon. Within the department, there has been a steady decline in halon releases, from a total of 2,200 kilograms in releases in 1994 to a total of 503 kilograms in releases in 2000. This initiative is profiled on Environment Canada's Pollution Prevention Success Stories website at <http://www.ec.gc.ca/pp>.

As an owner, operator and landlord of airports, Transport Canada has a responsibility to ensure the proper management of the de-icing fluid, glycol. Samples collected from surface runoff at airports during 1999–2000 were analyzed for glycol concentrations, and the results showed a continuing improvement in the responsible management of glycol effluents from de-icing operations. This improvement can be attributed in part to the detailed glycol management plans that are required from airline and/or ground handling agents at Transport Canada-operated airports and are encouraged from airport authorities before each de-icing season. Glycol recovery systems have also been installed at larger airports that collect excess glycol for reuse.

Environment Canada — Ontario Region completed three Federal Facility Pollution Prevention Demonstration Site Projects in partnership with Correctional Services Canada, Warkworth Institution in Campbellford, Ontario, the Canada Post Corporation Ottawa Mail Processing Plant and Vehicle Services Depot, and the House of Commons Printing Services. Each project involved the implementation of numerous pilot projects to demonstrate to management and staff how implementing pollution prevention practices could eliminate the generation of hazardous waste and improve efficiency and workplace health and safety. Federal departments were then encouraged to institutionalize successful practices throughout their operations. Examples of successful demonstration projects include the introduction of non-toxic non-

Canadian Forces Base Comox is anticipated to reclaim and reuse approximately 22,000 litres of aviation fuel and reduce the overall amount of hazardous waste generated.



emulsifying floor cleaner products and the replacement of organic solvent baths with aqueous parts washers. Canada Post Corporation is now initiating some of the projects throughout its operations due to the successes realized in this program.

The Department of Foreign Affairs and International Trade has been involved in the design of a new Canadian Embassy in Berlin, Germany. Approval has been granted to proceed with a design that incorporates sustainability principles. Energy efficiency, air quality, building materials, rainwater collection and low maintenance landscaping were all considered in the design.

Environment Canada — Pacific and Yukon Region, Fisheries and Oceans Canada and Public Works and Government Services Canada began an initiative to minimize environmental impacts from the selection of building materials used in the construction of a new federal building in Vancouver. Areas where alternatives were considered include floor coverings; paints, stains and sealers; walls and ceilings; lighting; millwork; furnishings; doors; frames; and plumbing fixtures.

Since 1990, Agriculture and Agri-Food Canada (AAFC) has been involved in the design and pilot testing of carbon treatment units to

PRECAUTIONARY PRINCIPLE

The Rio Declaration Precautionary Principle states that "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

Adoption of the Rio definition of the precautionary principle into the *Canadian Environmental Protection Act, 1999* has triggered efforts to prepare a framework for its use in Canada.

Federal departments and agencies have discussed what the principle means in the Canadian context.

Section 2: Progress within the Federal Government (continued)

handle excess pesticides and herbicides from its spraying operations. The end product of carbon treatment is decontaminated water that has been used to irrigate crops or wash down equipment. The pesticides are absorbed by carbon filters that are sent for reprocessing after use. The technology is already in place at a number of AAFC facilities. [E]

National Defence's Canadian Forces Technical Orders outlining the fuel dumping testing operations for the CH113 Labrador helicopters have been revised to specify the use of "on-ground" testing procedures versus "in-flight" testing procedures. By testing the fuel systems "on-ground" instead of "in-flight," all the fuel can be recovered. [E]

Canadian Forces Base Comox has developed a comprehensive system of collection and treatment to process waste aviation fuel and return it to the bulk fuel system for reuse as product. It is anticipated that the system will reclaim approximately 22,000 litres of fuel and will also reduce the overall amount of hazardous waste generated at the base by 23%. [E]

Early in 2000, Canadian Forces Base Trenton began a review of the gas chlorination system used for disinfecting its wastewater treatment plant effluent. Through the use of pollution prevention techniques, staff considered the alternative technologies available and ultimately selected an ultraviolet (UV) system. By no longer using chlorine, the base eliminated the chlorine residual in the effluent, which was toxic to aquatic life. The UV system also eliminated the need for storage, shipping and handling of chlorine, a corrosive chemical, and the need to monitor and report chlorine residual in the effluent discharge. The UV system became operational in April 2001. [E]

National Defence made reductions in the level of pesticide active ingredient use.* In 2000–2001, the reported pesticide



Canadian Forces Base Gagetown has the second largest in-vessel composter in North America. The compost generated off-sets the need for the base to purchase fertilizers and pesticides.

active ingredient use was 3,262 kilograms, down 47% from the reported pesticide active ingredient use of 6,178 kilograms in 1999–2000. For instance, Canadian Forces Base Gagetown reduced its pesticide active ingredient use 94% from 7,000 kilograms in 1993–1994 to 410 kilograms in 2000–2001. The implementation of integrated pest management plans at various other Canadian Forces bases also played a significant role in the overall departmental reduction. [E]

Vehicle Fleet Management

Natural Resources Canada reduced its vehicle fleet size by 40% from 1995 figures and has met its objectives for vehicle fleet size reduction. Over 20% of the department's vehicle inventory operates on cleaner-burning alternative fuels. [E]

The FleetWise program provides federal fleet managers with information and tools to improve the operational efficiency of their vehicle fleets, reduce emissions from federal operations and accelerate the use of alternative fuels. Under FleetWise, the Toyota Prius sedan, a hybrid electric vehicle (HEV), has been promoted to fleet managers in federal departments and agencies as an alternative fuel vehicle. The main advantage of HEVs is their

higher energy efficiency and lower emission of pollutants compared with conventional vehicles. The Prius is expected to use approximately 1.5 to 2.5 times less fuel than an average mid-sized vehicle. The federal government purchased 52 HEVs in 2000–2001, with half of those purchased by National Defence and Transport Canada. Through the Montreal 2000 Electric Vehicle Project, employees at Environment Canada — Quebec Region have travelled over 7,500 kilometres since 1999–2000 using a Solectria Force car, a light 100% electric vehicle. Public Works and Government Services Canada developed the Government Motor Vehicle Ordering Guide to provide information on alternative fuel vehicles. [E]

Another alternative fuel vehicle commonly purchased by the federal government is the E85. The Department of Foreign Affairs and International Trade purchased three of these vehicles in 2000–2001. E85s are built to use a less-polluting mixture of 85% ethanol fuel with 15% regular gasoline. [E]

* "Active ingredient use" is a regulatory term determined to be the most appropriate value by which to measure pesticide use. Not all pesticides are used in 100% concentration. In fact, the concentration of active ingredient in pesticide products varies widely. When measuring reductions in pesticide use, active ingredient is a more accurate measure to compare than amount of pesticide product.

Section 2: Progress within the Federal Government (continued)

ALTERNATIVE FUELS ACT FOR FLEET ACQUISITION

The *Alternative Fuels Act* will accelerate the use in Canada of alternative transportation fuels (ATFs) in motor vehicles and reduce the emission of carbon dioxide and other greenhouse gases. The Act targets the federal vehicle fleet, thus providing the government with a leadership role in the use of ATFs.

For instance, the Act requires departments and agencies to review each new vehicle acquisition in terms of its estimated annual fuel consumption and primary operational tasks and to purchase an ATF vehicle for a minimum of 75% of cases where it would be both cost-effective and operationally feasible.

The Canadian Food Inspection Agency delivered Green Fleet Driving Presentations to its staff. The presentations covered the promotion of green driving practices, including servicing vehicles regularly to optimize performance, reducing the amount of weight that vehicles carry to improve fuel economy, maintaining correct tire pressure and reducing engine idling time.

Procurement

In 2000–2001, Human Resources Development Canada spent approximately \$6.3 million on green purchases. The department has set as its target an increase of 5% in the amount spent on green purchases by March 31, 2002.

The Canadian Food Inspection Agency has integrated green criteria into its laundry and uniform rental service contracts. Companies are required to outline their efforts on environmental issues related to the work they propose to do for the Agency. The Agency also has an online system highlighting products with “green” qualities that are selected for their recycled material content, fewer polluting by-products and ease of reuse and recycling. In the future, the Agency will issue bulletins to employees on green procurement and will initiate a Green Procurement Strategy.

Training and Awareness

The Atlantic Canada Opportunities Agency is developing a training package and tools for program officers to assist them in promoting eco-efficiency and environmental management to small and medium-sized enterprises, partners and stakeholders.

National Defence continues to deliver its Unit Environmental Officers' Course. Since 1998, over 1,500 personnel have completed the course. During 2000–2001, Canadian Forces Base Borden released a new version of the course. The department also delivers training on environmental awareness, spill prevention and emergency response to various employees and Canadian Forces personnel across the country each year.

The Atlantic Canada Opportunities Agency is helping its program officers to promote eco-efficiency and environmental management by developing training packages and tools.



The Department of Foreign Affairs and International Trade delivered training and awareness courses on pollution prevention and other elements of sustainable development to its staff. The courses were incorporated into property management, heads of mission training and orientation sessions for new staff.

In the Prairie and Northern Region, Environment Canada and Indian and Northern Affairs Canada developed and delivered a Spill Prevention Training Course for the Black Lake and Fond du Lac First Nations in northern Saskatchewan. Over 25 participants attended the course. A training video was also produced and has been distributed to other First Nations and non-Aboriginal peoples in the region.

Environment Canada offered two Shoreline Cleanup and Assessment Technique courses to emergency response staff from government and industrial organizations in the Atlantic Region. These courses provided attendees with information on less toxic cleanup alternatives (where applicable), preventing or minimizing damage, and implementing appropriate remedial actions following oil spills that impact coastal areas. Course delivery partners include Natural Resources Canada, Canadian Coast Guard, Atlantic Emergency Response Team and Point Tupper Marine Services. Two courses have been delivered each year for the past three years, with about 25 attendees each. Spill prevention is an underlying theme for much of the course, as it is cheaper and easier to prevent spills than to clean up after spills have occurred.

Section 2: Progress within the Federal Government (continued)

TRACKING PROGRESS AGAINST POLLUTION PREVENTION — A FEDERAL STRATEGY FOR ACTION*

Goal: Institutionalize pollution prevention across all federal government activities

Actions:	Status:	Examples:
1. Incorporate pollution prevention into federal legislation	Ongoing	• <i>Canadian Environmental Protection Act, 1999</i>
2. Establish and implement green policies	Ongoing	• Greening of government operations
3. Establish a Commissioner of the Environment and Sustainable Development to advance pollution prevention in the federal government	Complete	• Commissioner established following changes to the <i>Auditor General Act</i> in 1995
4. Integrate pollution prevention into departmental policies and programs	Ongoing	• Environment Canada's Pollution Prevention Team • Atlantic Canada Opportunities Agency's program delivery • Federal Buildings Initiative • Canadian Forces Technical Orders for fuel dumping testing operations

* This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention within federal government operations.

UPCOMING PROJECTS

- Public Works and Government Services Canada (PWGSC) is developing a new intranet website called the Green Procurement Network. The purpose of the site is to help federal departments and agencies integrate green procurement into their policies, programs and purchasing processes. More specifically, the site is targeted at material managers, procurement officers and other employees who are directly involved in the purchasing of goods and services. PWGSC continues to incorporate environmentally responsible clauses in the National Master Specification, with special reference to energy, water, and solid and hazardous waste. PWGSC is also the lead department to procure "Green Power" on behalf of the federal government.
- Canadian Forces Base Borden's Integrated Pest Management Plan to coordinate pesticide management was initiated in May 2000 and completed in May 2001. As a result, a database to track pesticide use called PESTMAN was developed in 2000–2001 and will be tested in 2001–2002.
- During 2000–2001, Environment Canada and Canadian Forces Base Kingston signed an agreement to participate in an initiative to assess regulatory compliance and to document and identify pollution prevention opportunities related to the generation and management of hazardous waste. Other federal facilities such as the Royal Canadian Mint, Canadian Forces Base Petawawa and the Royal Canadian Mounted Police will be participating in this Ontario-based Federal Hazardous Waste Pollution Prevention initiative.
- Environment Canada — Quebec Region has taken action to reduce greenhouse gas emissions associated with its own operations. An inventory used to assess the region's greenhouse gas emissions has confirmed that transportation was responsible for over 59% of such emissions. In order to reduce greenhouse gas emissions generated by employees, a two-phase program was set up in 2000–2001. Both phases are to be implemented in 2001–2002. The first phase covers employee travel between residence and place of work, with an objective to promote and facilitate the use of more environmentally friendly means of transportation. The second phase involves business travel by employees and focuses on urban travel in the Quebec City–Windsor corridor. Geo-referencing software developed especially for the program records all employee travel by mode and time, and will be used to encourage all employees to use the mode of transport with the lowest emissions. Transportation of the House of Commons is also participating in this project.

Behaviour Change

A study in 2000 estimated federal employee carbon dioxide emissions from transportation at 1.5 megatonnes per year. In response, Transport Canada, Health Canada and other federal departments promote "green" forms of transportation — walking, biking, public transit and carpooling — to decrease employee-related emissions. For instance, Transport Canada provided new bike racks and security cameras at its Ottawa headquarters. The participation of 43% of Transport Canada employees in the 2nd National Commuter Challenge reduced vehicle emissions by more than 25 tonnes. Health Canada also had a successful Commuter Challenge, with 1,700 employees registered and vehicle emissions reduced by 300 tonnes.

UPPER

Progress with Other Governments

Federal pollution prevention strategy goal: Foster a national pollution prevention effort

National Partners

In June 2000, the Government of Canada and provincial and territorial ministers on the Canadian Council of Ministers of the Environment (except Quebec) adopted new Canada-wide Standards for Particulate Matter and Ozone. These Standards set ambient air quality concentration targets for ground-level ozone and fine particulate matter for the year 2010. Environment Canada is working with provinces and territories to develop comprehensive emission reduction strategies for a number of major industrial sectors in Canada. The provinces and territories are undertaking other measures focusing largely on existing commercial and industrial sources to ensure that the new standards will be met by 2010. Other important air quality-related Canada-wide Standards either adopted or accepted in principle by federal, provincial and territorial Ministers in June 2000 include mercury, benzene, and dioxins and furans.



Go For Green's Active Transportation program encourages the use of active modes of transportation to reduce greenhouse gas emissions.

2000 CCME POLLUTION PREVENTION AWARDS

The Canadian Council of Ministers of the Environment (CCME) gives national recognition to companies and organizations showing innovation or leadership in pollution prevention. The 2000 CCME Pollution Prevention Awards were presented to the following recipients:

- Hydro One Remote Communities Inc. of Ontario for strengthening its environmental commitment and including pollution prevention in its environmental policy. The company is working with remote communities to explore and implement renewable energy technologies, such as wind turbines and run-of-the-river hydroelectric facilities.
- Irving Pulp & Paper Ltd. in Saint John, New Brunswick, for developing and implementing an innovative and comprehensive process to reduce pollution levels in its wastewater. One of the technologies introduced was reverse osmosis.
- Dow Chemical's Western Canada Operations for eliminating the risk of toxic liquid chlorine spills and ozone-depleting chlorofluorocarbon (CFC) emissions by phasing out chlorine liquefaction facilities and eliminating liquid chlorine inventory and CFC refrigeration systems.
- The Canadian Vehicle Manufacturers' Association for spearheading the Canadian Automotive Manufacturing Pollution Project (an industry-government partnership). Participating companies include DaimlerChrysler Canada Inc., Ford Motor Company of Canada Ltd. and General Motors of Canada Ltd.
- The Refining Division of Irving Oil in Atlantic Canada for its production of low-sulphur gasoline for use by consumers two years ahead of legislative requirements.

Conoco Canada Ltd. of Calgary, Alberta, received the Greenhouse Gas Reductions Award for implementing an air emission reduction program at its Peco Plant. The Greenhouse Gas Reductions Award is new for 2000 and is presented to the company that achieves the greatest overall impact on greenhouse gas emissions through pollution prevention.

For more details on the CCME awards, visit the CCME website at <http://www.ccme.ca>.



Section 2: Progress with Other Governments (continued)

Provincial, Territorial and Municipal Partners

Health Canada supported Go for Green's Active Transportation program by providing contributions to the Federation of Canadian Municipalities for monitoring and evaluating projects. The Active Transportation program encourages municipalities to address the safety and efficiency barriers associated with active modes of transportation. Examples of this year's projects included the Collingwood Trails Project, the District of North Vancouver's Go Green Employee Transportation Choices Pilot and the Planning for Active Transportation Workshops Pilot in New Brunswick. All three projects worked to reduce greenhouse gas emissions from transportation by integrating alternative modes of transportation into the municipal planning process through such activities as development of alternative transportation trails and traffic bylaws. For more information, visit <http://www.goforgreen.ca>.

The five-year Georgia Basin Ecosystem Initiative supports key priorities such as protecting air and water quality, developing sustainable communities and building partnerships to maintain the viability of the region in British Columbia. Projects to protect air quality and combat climate change include supporting the development of an airshed management plan for Greater Vancouver and the Lower Fraser Valley. Efforts to improve water quality include working with the Regional District of Nanaimo to develop storm water management guidelines for local governments. Efforts are also under way in Surrey to develop standards and bylaws for sustainable urban development.

As an alternative to road expansion in Halifax Regional Municipality, TRAX, a project of the Ecology Action Centre (with EcoAction funding), is attempting to reduce single-occupancy vehicle use and expand its trip reduction program in 10 to 15 workplaces. TRAX



The Nova Scotia Department of Environment and Environment Canada signed a Memorandum of Understanding on Pollution Prevention and have committed to working cooperatively to advance pollution prevention through collaborative work plans, joint actions and follow-up reporting.

efforts will contribute significantly to the local government's commitment to a 20% reduction in greenhouse gas production. The two-year goal of this project is to reduce greenhouse gas emissions by 750,000 kilograms per year. For more information, visit <http://www.trax.ns.ca>.

The City of Toronto needed to revise its sewer use bylaw after City Council decided to stop incineration and implement 100% biosolids beneficial use by December 31, 2000. On July 6, 2000, the bylaw was passed with limits on 27 toxic organics and more stringent limits on most of the 11 heavy metals found in the Ontario Guidelines for Utilization of Biosolids and Other Wastes on Agricultural Land. Any industry that discharges a subject pollutant to the Toronto sewer system will be required to prepare a pollution prevention plan and a summary of that plan. Environment Canada is providing assistance to the City on the pollution prevention requirements in its new bylaw as well as sponsoring training sessions for City enforcement staff.

Environment Canada — Atlantic Region has invested time and resources in motivating municipal and provincial partners on the advantages and need for at-source control as a vital part of any wastewater management program. Several

seminars focusing on at-source control have been provided to communities. As a result, these communities have joined forces to advance opportunities and options for both traditional wastewater treatment and more innovative at-source control. At-source control has been promoted to Environment Canada staff, tasked with drafting a national strategy on municipal wastewater.

In September 2000, the Nova Scotia Department of Environment and Environment Canada signed a Memorandum of Understanding (MOU) on Pollution Prevention. This MOU, the first of its kind in Canada, commits both departments to work cooperatively to advance pollution prevention through collaborative work plans, joint actions and follow-up reporting. The MOU promotes the development of the one-window approach favoured by clients and enhances the ability of both groups to lever additional funding. It is also seen as the first step in encouraging other resource and economic development departments to sign the MOU.

The British Columbia Pollution Prevention Implementation Advisory Committee authored a report recommending a voluntary "compliance-plus" pollution prevention planning process available to any large industrial facility in the province. The process will be overseen and supported by the B.C. Ministry of Water, Land and Air Protection, Environment Canada, industry, labour, regional and local governments, environmental groups and universities. Performance measures such as raw materials consumption, waste emissions, spills and discharges will be a necessary part of participating facilities' pollution prevention plans.

Section 2: Progress with Other Governments (continued)

In September 2000, the Governments of Canada and the Yukon signed an agreement for an Energy Solutions Centre in Whitehorse. The Centre opened in December 2000 and provides one-stop shopping for Yukoners' information needs on energy conservation, energy efficiency and renewable energy. It also facilitates delivery of the two governments' specific energy programs, identifies opportunities and provides technical assistance for energy efficiency as well as renewable energy projects in the Yukon.

In 2000, the federal government released Canada's National Programme of Action for the Protection of the Marine Environment from

Land-based Activities (NPA). The initiative is led by Fisheries and Oceans Canada and Environment Canada and has been prepared through the collaborative effort of the federal, provincial and territorial governments. The NPA will complement federal, provincial and territorial initiatives such as those dealing with integrated management in the coastal zone, coastal marine protected areas and pollution prevention. Key NPA activities include promoting coastal zone management, collaborating on community-based actions, establishing an information clearinghouse, promoting improved sewage treatment, developing guidelines and codes of practice, and preparing annual progress reports.

TRACKING PROGRESS AGAINST POLLUTION PREVENTION — A FEDERAL STRATEGY FOR ACTION*

Goal: Foster a national pollution prevention effort


Actions:	Status:	Examples:
1. Review legislation, regulations and policy for opportunities to harmonize approaches to pollution prevention	Ongoing	<ul style="list-style-type: none">• Canadian Council of Ministers of the Environment Canada-wide Standards• Memorandum of Understanding between Environment Canada and Nova Scotia Department of Environment
2. Develop practical tools, such as guidelines and codes of practice, to enable people to implement pollution prevention at an operational level	Ongoing	<ul style="list-style-type: none">• British Columbia pollution prevention planning process• Energy Solutions Centre
3. Educate the public about pollution prevention and train relevant groups in the technical aspects of pollution prevention	Ongoing	<ul style="list-style-type: none">• Canadian Council of Ministers of the Environment Pollution Prevention Awards• Climate Change Action Fund Program

* This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention with other orders of government in Canada.

Progress with the Private Sector


Federal pollution prevention strategy goal: Achieve a climate in which pollution prevention becomes a major consideration in private sector activities

Industrial Pollution Prevention

The Accelerated Reduction and Elimination of Toxics (ARET) program was a multi-stakeholder pollution prevention and abatement initiative involving industry, health and professional organizations, as well as governments across Canada. Through voluntary actions, ARET sought the virtual elimination of 30 persistent, bioaccumulative and toxic substances, as well as significant reductions in emissions of another 87 toxic substances. Overall, there has been a 67% reduction in the release of toxics included in the ARET program from base year levels. Of 316 facilities participating in ARET, 136 have already met or exceeded year 2000 targets for all categories of substances on which they report. A commitment was made by Environment Canada, Industry Canada and other departments and organizations to develop a successor program to ARET. Multi-stakeholder consultations on this new program were held across Canada throughout 2000-2001. 

The Canadian Industry Program for Energy Conservation (CIPEC) represents more than 3000 companies and reports on approximately 90% of total industrial energy demand through 23 task forces. The aggregate CIPEC target is a 1% overall improvement in industrial energy intensity¹ per year through to 2005. From 1990 to 1999, industrial energy intensity improved, on average, by about 2% per year, while emissions for 1999 were confirmed at approximately 2% below the 1990 base case level. Building on CIPEC, Natural Resources Canada is working with industry through the Industrial Energy Innovators Initiative. As of March 2001, this initiative recruited nearly 300 companies, representing about 74% of industrial energy use. These companies achieved savings of \$21 million per year in energy costs for investments of \$210 million (includes federal government contributions and company contributions) and carbon dioxide reductions of 175,000 tonnes per year. For more information on CIPEC, visit their website

at <http://oee.nrcan.gc.ca/cipec/ieep/cipec/index.cfm>. 

Statistics Canada, through a Survey of Environmental Protection Expenditures in the Business Sector, collects data on the environmental protection investments made by primary and manufacturing industries, electric power generation, transmission and distribution, natural gas distribution, and pipeline transportation facilities. In terms of expenditures in pollution prevention technologies and methods, processes related to reuse and recycling of materials² remained the most popular investment (over 65%). Following reuse and recycling were prevention of leaks and spills (59%) and energy conservation (45%). These three methods have remained the most popular pollution prevention investments since 1995. 

FREQUENCY OF POLLUTION PREVENTION METHODS

Year	Percentage of total number declared						
	Product design or reformulation	Substitution or modification of production process	Recirculation, recovery, reuse or recycling	Energy conservation	Material or solvent substitution	Prevention of leaks and spills	Other
1995	39	31.6	63.5	36.9	24.0	50.2	4.7
1996	10.5	8.8	66.2	41.7	36.5	43.2	6.4
1997	14.7	24.7	63.6	42.1	37.0	51.2	9.9
1998	16.7	23.8	64.3	43.2	37.7	54.6	11.1

Notes 1 This table includes reported data only

2 The question on pollution prevention methods allows for a general view but should be treated with caution

Sources

¹ Energy intensity is the total energy consumed by a sector divided by the total amount of activity in that sector (e.g., tonnes of goods produced).

Section 2: Progress with the Private Sector (continued)

HELPFUL ENVIRONMENTAL BUSINESS INFORMATION

To view the pollution prevention capabilities of Canada's best technology and service firms, visit Canadian Environmental

Solutions (CES) at

http://prods.businesscanada.ic.gc.ca/Ces_Web/_index_cfm/. Developed

by Industry Canada, CES addresses environmental problems related to water, air, soil, energy, and research and development. It is a direct link to solutions and Canadian companies that can supply them. CES works because it is exhaustive — it describes 2000 environmental problems and solutions, along with more than 900 solution-providing companies.

Industry Canada participated in the design of voluntary agreements and initiatives. The use of voluntary measures allows Canadian industry to develop innovative and cost-effective pollution prevention strategies. The department reviews the success of select voluntary measures and identifies areas where improvements could be made, as well as candidate sectors for new initiatives. For example, Industry Canada participated as a member of the Government Advisory Panel to the Vinyl Council of Canada Environmental Management Program (EMP). The EMP was designed with pollution prevention as its overall objective. It consists of six guiding principles, five commitment areas and a series of practical action steps, all issued within its first annual report released in September 2000.

Sector-Specific Initiatives

Agriculture and Food

The three-year Environment Canada liquid manure composting demonstration involves the installation, operation and monitoring of a full-scale composter at a 3,000 weaner pig farm in Ontario. The objective is to demonstrate the merits of the composting system in reducing odours and preventing the contamination of surface waters and groundwater, as well as to effectively achieve greenhouse gas reductions. It is estimated that this project will result in a 50% reduction in methane over normal liquid manure handling. The project was approved in June 1999, was sited in August 2000 and will conclude on March 31, 2002. Agriculture and Agri-Food Canada is also involved with manure management through its ManureNet website. ManureNet is an online system of resource materials updated regularly with new information and results of ongoing projects. Visit ManureNet at <http://res2.agr.ca/initiatives/manurenet/manurenet.html>.

Automotive

In 2000–2001, the Automotive Parts Manufacturers' Association (APMA) Pollution Prevention Project began negotiating a new Memorandum of Understanding with Environment Canada. The agreement will build pollution prevention performance targets into an ISO 14001 Environmental Management



The EnerGuide for Vehicles initiative, established by Natural Resources Canada, encourages vehicle manufacturers to attach an EnerGuide label to new vehicles sold in Canada.

System platform. To date, 1,189 tonnes of substances of concern, including chromium, aluminum, xylene, trichloroethane and chromic acid, have been reduced and/or eliminated in 44 case studies since December 1993. For more information, visit the APMA website at <http://www.apma.ca>.

The Canadian Automotive Vehicle Manufacturing Pollution Prevention Project has a clear and defined goal of producing a verifiable reduction and/or elimination of persistent toxics and other substances used, generated or released in automotive manufacturing facilities. The project is an industry–government cooperative partnership involving the Canadian Vehicle Manufacturers' Association (CVMA), Environment Canada, the Ontario Ministry of the Environment, DaimlerChrysler, Ford and General Motors. The project was initiated in 1992 and since then has been the longest-running voluntary pollution prevention project between government and industry in Canada. More than 400,000 tonnes of toxic and other substances have been reduced and/or eliminated through this concerted effort. Each company, by extension of its supplier community, has used a combination of techniques to prevent, reduce or eliminate pollution at the source. In addition to pollutant reductions and/or eliminations, member companies have realized cost savings of approximately \$11 million using the pollution prevention approach. This project received a Pollution Prevention Award presented by the Canadian Council of Ministers of the Environment in June 2001. For more information, visit the CVMA website at <http://www.cvma.ca>.

Includes recirculation, reuse, recovery or recycling of water, materials or substances generated during production, excluding materials transferred or recycled off-site

Section 2: Progress with the Private Sector (continued)

Under Natural Resources Canada's EnerGuide for Vehicles initiative, vehicle manufacturers voluntarily attach an EnerGuide label to new vehicles sold in Canada. The label indicates the vehicle's fuel consumption rating and estimated annual fuel costs to help consumers select the most fuel-efficient vehicle that meets their needs. A 1999 on-site survey of dealers' compliance for the initiative revealed that 64% of vehicles on dealers' lots and 47% of vehicles in showrooms displayed the label. [REDACTED]



The use of EcoSmart™ concrete in construction projects has the potential to reduce carbon dioxide emissions by substituting fly ash and other materials for the cement generally used in concrete.

Chemical

A renewed MOU for Environmental Protection between the Canadian Chemical Producers' Association (CCPA), Environment Canada, Industry Canada, Health Canada and the Provinces of Ontario and Alberta was negotiated in 2000 and has now been signed by all parties. The objective of the new MOU is the prevention and reduction of the release of toxic and other chemical substances through voluntary, non-regulatory action under the CCPA Responsible Care® Program. As part of this process, a specific Annex to reduce volatile organic compounds (VOC's) was developed. The Annex contains national emission reduction targets of 58% from a 1992 base year and 25% from a 1997 base year by 2002. CCPA member companies have already made significant progress in addressing VOC emissions that contribute to smog. Between 1992 and 1997, emissions dropped from over 28,000 tonnes per year to just under 16,000 tonnes, a reduction of more than 44%. [REDACTED]

Construction

Natural Resources Canada's International Centre for the Sustainable Development of Cement and Concrete promotes the use of EcoSmart™ concrete. EcoSmart™ concrete has the potential to substantially reduce emissions of carbon dioxide by substituting fly ash and other materials for the Portland cement traditionally used in concrete. The target is over 50% replacement of cement with the fly ash and other materials. Fly ash is a by-product of coal-burning power plants and is normally destined for landfill. During 2000–2001, Natural Resources Canada, in partnership with the Greater Vancouver Regional District, Environment Canada, Industry Canada and the local concrete and cement industry, demonstrated the advantages of this technology through several construction projects, including five in British Columbia. Replacing one tonne of cement with one tonne of fly ash offsets industrial carbon dioxide emissions by approximately one tonne, in addition to providing a use for an industrial by-product. For more information, visit <http://www.ecosmart.ca>. [REDACTED]

Industry Canada, along with Natural Resources Canada, Public Works and Government Services Canada and the National Research Council of Canada, through Intelligent Buildings Technology Roadmap/Smart Buildings Case Studies, are addressing some of the challenges slowing the adoption and use of intelligent building technologies. These technologies may lead to improvements in energy efficiency and indoor air quality. In 2000–2001, planning activities began for the implementation of a demonstration project of intelligent building technologies at an Industry Canada building in Ottawa. [REDACTED]

Dry Cleaning

Environment Canada — Ontario Region, in partnership with a local dry cleaning business, Our Cleaners of Barrie, Ontario, began testing a Japanese wet clean technology with a goal of reducing and possibly eliminating the use of detergents in wet cleaning operations. To date, the project has shown that the cleaning of many garments can be professionally

achieved with decreased water (17%), electricity (28%) and detergent consumption (73%). [REDACTED]

Environment Canada — Ontario Region, in partnership with the Ontario Ministry of the Environment, provided educational workshops to promote compliance to stakeholders on the proposed federal perchloroethylene regulations. [REDACTED]

Furniture Manufacturing

Environment Canada introduced a pollution prevention project in the furniture industry in Quebec, where 50% of Canada's wood furniture is produced. The aim of this project is to reduce emissions of both volatile organic compounds and greenhouse gases, including reduction in use of products identified as hazardous or toxic under the *Canadian Environmental Protection Act, 1999*, as well as solvents, paints and pigments. The first phase of the project, developed in 2000–2001, involved identifying and evaluating applicable pollution prevention technologies, establishing a partnership with industry and developing a tool to identify and assess pollution prevention opportunities in factories. The second phase, planned for 2001–2002, will cover the identification and implementation of pollution prevention projects in approximately 10 factories and the training of factory employees. [REDACTED]

Health Care

With renewed interest in greening health care and new environmental challenges faced by health care institutions, a new website has been developed to show health care staff how to take action to reduce the environmental impact of their facilities. Healthcare EnviroNet was launched at a series of training workshops in Ontario in the winter months of 2001. Healthcare EnviroNet has been established with support from Environment Canada — Ontario Region and is developed and maintained by the Canadian Centre for Pollution Prevention in consultation and partnership with health care and non-government organizations. Visit <http://www.c2p2online.com> and click on the Healthcare EnviroNet logo. [REDACTED]

Section 2: Progress with the Private Sector (continued)

Metal Finishing

The Metal Finishing Industry Project is a partnership between Environment Canada and the Ontario Ministry of the Environment, the Canadian Association of Metal Finishers and related industry associations that began in 1993. The project's goals are to develop tools for formulating pollution prevention plans for the reduction of toxic substances, to promote the development and implementation of site-specific pollution prevention plans and to publish the progress of substance use reductions under the plans. Between 1996 and 2000, Ontario metal finishers have reported a steady increase in financial savings through pollution prevention with an increase in pollution reduction (see Figures 1 and 2). Additionally, 94 employees from 35 organizations have completed training in pollution prevention planning. For more information,

visit the Canadian Association of Metal Finishers' website at <http://www.camf-acfm.com>.

Mining

Natural Resources Canada provides technical knowledge and expertise to the mining industry in managing solid mine waste as well as mine, mill and metallurgical effluents. For example, the department is developing improved science and technology for the safe and effective stabilization, disposal and revegetation of mine sludge to minimize and prevent metal leaching and mobilization. The Mine Environment Neutral Drainage initiative (MEND) is reducing future environmental impacts of mining by providing knowledge about the prevention or control of acidic drainage. In 2000-2001, the final year of the current program, two workshops on acidic drainage attracted 270 participants.

Figure 1: Financial Savings Achieved through Pollution Prevention Reported by Ontario Metal Finishers

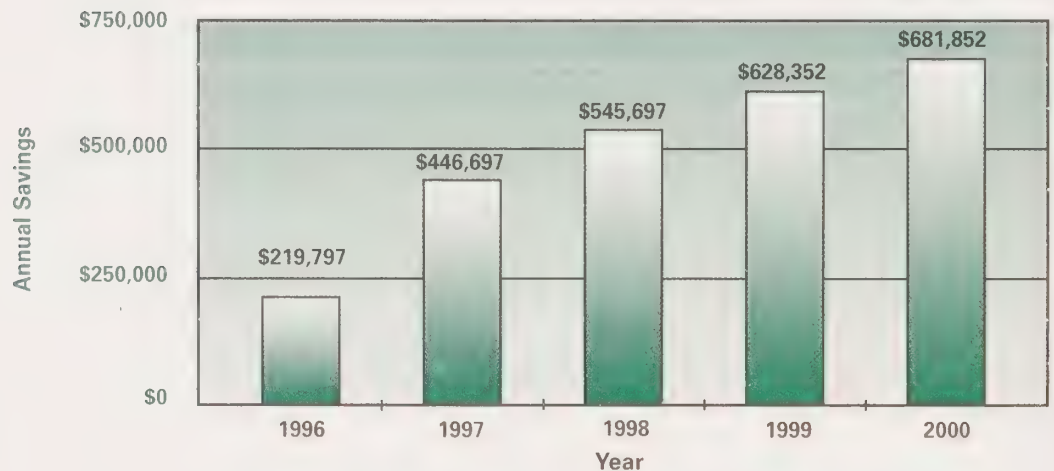
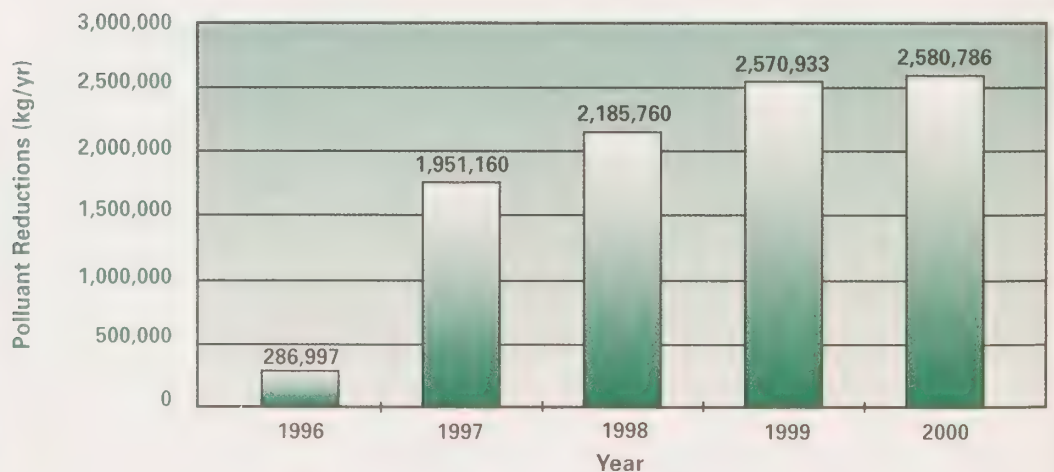




Figure 2: Pollution Reductions Reported by Ontario Metal Finishers




Section 2: Progress with the Private Sector (continued)

In 2000–2001, Natural Resources Canada helped to set up a North American consortium aimed at bringing hydrogen fuel cells to underground mining operations. One of the major benefits of this technology is pollution-free exhaust. The long-term objective for this work is to retrofit underground mining vehicle fleets, which are currently powered by diesel fuel, with hydrogen fuel cell technology. The target is to retrofit all 3,500 underground diesel vehicles in Canada by 2007. 

Oil and Gas

Environment Canada — Prairie and Northern Region continued to develop pollution prevention expertise, resources and tools to address the oil and gas sectors in the Northwest Territories and Nunavut. The goal is to develop alternatives to resource-intensive management options and to encourage the prevention and reduction of pollution through viable technology. Alternatives include best practices that use “low-impact” or “avoidance” techniques. A workshop on the pollution prevention opportunities for oil and gas developments was delivered in March 2001. 


Western Economic Diversification Canada contributed funds to conduct an Alberta pilot field trial on the use of “paste technology” (thickened fine tailings) to eliminate the use of conventional settling ponds in processing operations. The technology rapidly separates fresh fine tailings into two components: water for recycle and a paste-like material for solid disposal. The results of the pilot will permit industry partners to move into commercial implementation as early as 2002. 

Printing and Graphics


CleanPrint Canada is a pollution prevention project that works with printing and graphics firms, associations and other governments to reduce and/or eliminate the use, generation or release of toxic substances and other substances of concern. Environment Canada is a leader and funding participant in various regional organizations within CleanPrint Canada.

In Ontario, over 1,249 tonnes of toxic substances and other environmental contaminants have been reduced or eliminated from the waste stream over the past five years. Achievements for 2000–2001 include the ISO 14001 certification of Greenflow Environmental Services Inc., the elimination of 400 tonnes of volatile organic compound emissions, and the recycling and reuse of 65,300 kilograms of waste ink and 13,600 kilograms of developer and fixer.

CleanPrint BC is working to promote environmental management tools throughout British Columbia. Some long-term goals of this project include the reduction of volatile organic compound (VOC) emissions from printing in the Lower Fraser Valley to 20% of 1985 levels by 2005, the reduction of discharges of silver and VOCs to the Capital Regional District sewer system by 50% and contributing to a 50% reduction in municipal solid waste in British Columbia. At the CleanPrint BC website, printers can access best management practices, posters, how-to-guides for preparing environmental management plans and a guide to environmental regulations.


Additional regional printing and graphics industry initiatives can be found at <http://www.cleanprint.org>. 


Shipyards

Environment Canada — Atlantic Region, in partnership with National Defence, is committed to reducing marine environmental impacts from ship maintenance activities. Both departments are currently exploring the use of hydrosprays as alternatives to abrasive polishing techniques when removing marine growth on ships. In addition, military ship maintenance tender specifications have been revised to include more attention by bidders to environmental issues. 

Tourism

The Golf Course EcoEfficiency Project is a partnership between GreenLinks Eco-Efficiency Services, Burnside Golf Services and Environment Canada to promote pollution prevention and other

environmental management initiatives at 28 golf courses throughout Ontario and an additional 23 courses across Canada. Over the past year, many courses reduced pesticide and other chemical use and achieved reductions in water and energy consumption by implementing projects recommended by project coordinators. The savings generated by these projects will finance more expensive projects in facility service and maintenance in upcoming years. Reductions in waste disposal were achieved by implementing improved waste management practices in all aspects of the facilities. For more information, visit the GreenLinks website at <http://www.greenlinks.net>. 

CampGreen Canada encourages recreational vehicle (RV) owners to use non-toxic wastewater treatment products in their holding tanks. RV liquid waste treatment often uses formaldehyde and quarternary ammonia-based compounds that can harm septic systems and the environment. Nova Scotia was the first province in Canada to embrace a unified approach to promoting the use of biological treatment alternatives. The initiative was developed in partnership with the Campground Owners Association of Nova Scotia, Parks Canada, Environment Canada, the provincial departments of environment and natural resources, the Tourism Industry Association of Nova Scotia (TIANS), the Recreational Vehicle Dealers Association and the Good Sam Club. At dumping stations in 23 Nova Scotia provincial parks, 120 private campgrounds in Nova Scotia and all seven federal parks in Atlantic Canada, signs were installed and 100,000 informational pamphlets distributed. A national campaign entitled “Camp Green, Canada!” will be implemented in 2001. Three-year performance targets include the designation of 70% of private, 80% of provincial and 100% of federal campgrounds as chemical-free. For more information, visit the TIANS website at <http://www.tians.org> 

Section 2: Progress with the Private Sector (continued)

GREEN CHEMISTRY

Green Chemistry is the design of chemical processes, products and technologies that reduces or eliminates the use and generation of hazardous substances and that emphasizes broader considerations to development such as the reduction of energy and raw materials use. The concept requires a shift in research and development priorities to more innovative and environmentally benign products and technologies.

Transportation

Pollution prevention demonstration projects were introduced at the Ottawa-Carleton Regional Transit Commission (OC Transpo) Maintenance Facility in partnership with Environment Canada — Ontario Region. Projects, including the replacement of organic solvent baths with aqueous parts washers, are aimed at demonstrating how bus servicing and maintenance operations could be modified to reduce or eliminate the use of hazardous chemicals and improve efficiency and the workplace environment for employees.

Environment Canada — Quebec Region initiated a pollution prevention project with Air Canada aimed at reducing the use of dichloromethane (DCM) at its aircraft maintenance facilities. Air Canada has two aircraft maintenance facilities — one in Montreal and one in Toronto. The Montreal maintenance facility has completely eliminated the use of DCM for its paint stripping operations through replacement with benzyl alcohol. This resulted in a 10% reduction in the total use of this substance at Air Canada facilities. The Toronto facility, which accounts for 90% of the volume of DCM used at aircraft maintenance facilities, will reduce DCM use during the coming year.

Training and Awareness

Environment Canada continued to fulfil its long-term commitment to hold spill prevention workshops. In 2000–2001, two workshops were held in Ontario, each attended by approximately 60 industry and municipal representatives. In Atlantic Region, Environment Canada offered Shoreline Cleanup and Assessment Technique courses to emergency response staff in industrial organizations.

Natural Resources Canada's FleetSmart program helps the commercial vehicle fleet sector to improve energy efficiency, decrease operating costs and reduce emissions from fleet operations. The FleetSmart Tool Kit contains a series of guides on various aspects of fleet energy management — from computerization and alternative fuel options to vehicle maintenance and procurement. Training in fuel-efficient driving techniques is another key product of the FleetSmart Program. The first in a SmartDriver series of training modules on

fuel-efficient driving was developed in consultation with the trucking industry. The kit is available as training resource material to qualified trainers in professional driving schools and fleets. A new SmartDriver series of training modules for the forestry industry, in partnership with the Forest Engineering Research Institute of Canada, is currently being developed. SmartDriver modules for other types of fleet operations such as motorcoach and municipal vehicle fleets will be developed in the future. For more information, visit <http://fleetsmart.nrcan.gc.ca>.

Small and Medium-Sized Businesses

EnviroClub™ is a federal-private sector initiative launched by Environment Canada — Quebec Region in 1998 with financial support from Economic Development Canada, the National Research Council of Canada and the Climate Change Action Fund. Its purpose is to introduce pollution prevention projects or develop environmental management systems in small and medium-sized businesses. During 2000–2001, two additional clubs were established in Quebec. A total of 21 businesses have signed on to carry out 7 projects to reduce or eliminate toxic materials, 10 projects to reduce greenhouse gas emissions and 4 projects to prepare and implement environmental management systems. Building on the interest of local business, the Atlantic Canada Opportunities Agency, in partnership with Environment Canada and Business New Brunswick, funded a proposal by the Miramichi River Environmental Assessment Committee to establish a Miramichi EnviroClub™ (the first EnviroClub™ in the Atlantic Region). An estimated 10 to 15 companies will participate in the project.

Since 1998, the Eco-efficiency Centre in Burnside has been assisting small to medium-sized businesses in the Burnside Industrial Park, Halifax, to reduce toxics, minimize waste and conserve energy and water. The Centre is based on a partnership between Dalhousie University and Nova Scotia Power Inc., with support from Halifax Regional Municipality, Nova Scotia Department of Environment and Labour and the Atlantic Canada Opportunities Agency. Environment Canada is on the advisory board and provided technical support. By 2000, over 65 companies had joined the Eco-Business Program, adopting an environmental code and committing to

Section 2: Progress with the Private Sector (continued)

Approximately 51 golf courses across Canada have implemented pollution prevention and other environmental management initiatives to reduce their use of pesticides and other harmful chemicals.



achieving specific waste reduction and conservation goals. Membership entitles companies to a number of services, such as an environmental review and provision of appropriate technical materials. In 2000, 75 environmental reviews of companies were completed. Thirty-four of these companies have used their review and worked with the Centre to achieve the following: 1,569 tons of solid waste diverted from landfill and 95,640 litres of liquid waste diverted from the sewer (this includes reduction in toxics). Fuel oil consumption reductions have saved \$36,000. Water consumption has been reduced by 11.4 million litres, and companies have reported economic gains in excess of \$54,000.

The Abbotsford Business Environmental Pledge Program was piloted by Environment Canada — Pacific and Yukon Region in spring 2000. To date, 12 organizations ranging from the chemical sector to office facilities have participated. Participants have received technical assistance in the form of site visits with recommended actions and information, as well as community recognition.

With support from Environment Canada's EcoAction fund, the Bedeque Bay Environmental Management Association is working with local businesses in Prince Edward Island to develop environmental action plans. Targeted businesses include the local marina/yacht club, the local newspaper, auto repair shops, dry cleaners, hairdressers, fast food restaurants and various institutions.

Reductions of a minimum of 10% of waste, energy, carbon dioxide and water are expected.

Environment Canada — Ontario Region completed the Enhanced Eco-Efficiency Initiative in Kitchener-Waterloo, a pilot program to encourage small and medium-sized enterprises to reduce or eliminate the use of toxic substances. The program involves a facility audit to inventory toxic substances used and an action-oriented plan to implement low-cost options to eliminate or reduce their use. Seven facility reviews and assessments have been initiated since the program started in December 1999. The Ontario Centre for Environmental Technology Advancement delivers the program on behalf of Environment Canada together with the Ontario Ministry of the Environment, Regional Municipality of Waterloo and industry associations.

Research and Development

Natural Resources Canada coordinated the Canadian Lightweight Materials Research Initiative (CLIMRI), a government-industry partnership aimed at producing advanced, lightweight components for vehicles. CLIMRI's technical focus is weight reduction in ground transportation with the goal of reducing emissions through improved vehicle efficiency. Natural Resources Canada has invested \$2.1 million in 11 ongoing projects since the program began in April 1999.

Technology Partnerships Canada is a technology investment fund operating out of Industry Canada that makes high-risk repayable investments in research, development and innovation. In 2000–2001, the fund invested \$213.1 million in 10 projects with potential sustainable development benefits. Examples of project areas funded include improving energy efficiency in water treatment technology, hydrogen fuel infrastructure, small gasoline engine pollution reduction, sonar technology to identify leaks in underwater pipelines and airborne climate change monitoring technology.

The Ontario Sustainable Aquaculture Working Group includes members from Environment Canada, Fisheries and Oceans Canada, the Federal Commissioner's Office, provincial government, fish farmers, Ontario aquaculture association representatives and scientists from the University of Guelph Aquaculture Centre. The Working Group is developing and testing approaches to maintain acceptable water quality and fish habitat in the vicinity of aquaculture operations. Two low biochemical oxygen demand (BOD) feed formulations for rainbow trout have been developed and are undergoing fish growth trials at the University of Guelph. Two growth periods have been completed, and preliminary results indicate better feed conversion than with normal feeds, resulting in less waste production, BOD and phosphorus.

The Microwave-Assisted Processes (MAP) are a family of clean processing technologies that were developed and patented by Environment Canada's Environmental Technology Advancement Directorate. The MAP family of technologies focuses on the use of microwaves to enhance or accelerate biological, chemical or physical processes. Economic and environmental benefits accrue from dramatically reduced energy and chemical consumption and improved performance in terms of product yield and quality with reduced wastes associated with the process. As an example of the ability of MAP to contribute to pollution prevention, the U.S. Environmental Protection Agency has approved the use of a MAP method as a Standard Reference for the preparation of environmental analytical samples. This is also an approved *Canadian Environmental Protection Act, 1999* regulatory Reference Method. The introduction of these methods to laboratories is significant, because it is estimated that about 100 million litres of organic solvents are used in organic analytical laboratories annually. The MAP method requires about 90% less solvent. Toxic solvents such as dichloromethane,

Section 2: Progress with the Private Sector (continued)

currently used in conventional methods, can be avoided completely, thus greatly reducing human exposure to this substance. In most cases, energy requirements are also reduced by about 90%, which translates into a significant reduction in greenhouse gas emissions.

Natural Resources Canada performs research on sustainable casting technology. This work has resulted in the development of lead-free alloys for use by the plumbing industry. The use of these alloys in plumbing fixtures eliminates the possibility of lead leaching from the fixtures into drinking water. Natural Resources Canada also performed research on the management of oil and gas pipeline corrosion. This work is expected to reduce the incidence of oil and gas leaks to the environment.

Western Economic Diversification Canada (WD) was an early financial contributor to the development of the Ballard hydrogen fuel cell. More recently, WD collaborated with the province of British Columbia to support the creation of Fuel Cells Canada, a national fuel cell industry organization working to promote the development, demonstration and adoption of hydrogen fuel cells and related technologies. The hydrogen fuel cell is expected to become

an alternative fuel source for everything from consumer electronics to automobiles — it generates electricity without the generation of greenhouse gases.

“Research and Technology Transfer in the Floriculture Industry” is a research project in its sixth year with the University of Guelph in Ontario. The purpose of the project is to study nutrient recycling techniques without inhibiting plant growth and to provide technology transfer to the agriculture and agri-food sector. Tests have shown that long-term nutrient recycling can be used with short-term and medium-term crops, such as *Alstroemeria*, gerberas and chrysanthemums, without detrimental effects on production or quality. Nutrient savings that could be achieved using a recirculated system are estimated to be at least 75%. An initial survey was conducted with greenhouses to determine the needs and barriers in using a recirculated system. A more intensive survey will be conducted with a sampling of greenhouses in the coming year to assess the extent to which technology has been transferred based on the research conducted. In addition to partially funding this project, Environment Canada provided guidance and follow-up on progress and assisted in conducting site visits.

TRACKING PROGRESS AGAINST POLLUTION PREVENTION — A FEDERAL STRATEGY FOR ACTION*

Goal: Achieve a climate in which pollution prevention becomes a major consideration in industrial activities

Actions:	Status:	Examples:
1. Develop innovative pollution prevention programs	Ongoing	<ul style="list-style-type: none">• Camp Green, Canada!• CleanPrint Canada• FleetSmart
2. Promote pollution prevention through refocused research, development and demonstration initiatives	Ongoing	<ul style="list-style-type: none">• Sustainable casting technology• Liquid manure composting• Wet clean technology• Canadian Lightweight Materials Research Initiative (CLiMRI)
3. Promote the adoption of sustainable production in industrial and manufacturing processes	Ongoing	<ul style="list-style-type: none">• EcoSmart concrete• Canadian Automotive Vehicle Manufacturing Pollution Prevention Project• Metal Finishing Industry Project
4. Implement economic instruments that will result in pollution prevention	Developmental stages	
5. Help small and medium-sized enterprises improve their environmental performance	Ongoing	<ul style="list-style-type: none">• EnviroClub™• Eco-efficiency Centre• Enhanced Eco-Efficiency Initiative

* This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention with the private sector

Section 2: Progress with the Private Sector (continued)

UPCOMING PROJECTS

- Environment Canada, along with partners on the British Columbia Pollution Prevention for Small Business Working Group, initiated a pollution prevention project for metal finishing in November 2000. The goals of the project are focused on reducing air and effluent releases of volatile organic compounds and metals, particularly hexavalent chromium. Working group activities are scheduled for completion by the end of 2002.
- The CleanMarine Eco-Rating Certification is a three-year commitment to certify 150 marinas in Ontario and rate them based on their environmental performance. Participants will be provided with a CleanMarine Best Management Practices Handbook. Using the manual, marina operators are guided through over 200 environmentally responsible practices in all aspects of marina operation. An audit is then completed to determine the marina's overall level of environmental performance and a rating awarded to indicate its achievement level. The Ontario Marina Operators Association (OMOA) established this certification program in conjunction with the Ontario Ministry of the Environment, Environment Canada and TerraChoice Environmental Services. The official launch of the program will take place in April 2001. For more information, visit the OMOA website at <http://www.omoa.com>.
- The Ontario Centre for Environmental Technology Advancement delivered a pilot program on behalf of Environment Canada that served as the model for the \$2.25 million Business Water Quality Program. This five-year partnership between Environment Canada, the Regional Municipality of Waterloo and the Ontario Ministry of the Environment will include technical assistance and financial incentives to promote best management practices. The program will also educate small and medium-sized enterprises on the benefits of pollution prevention planning to improve environmental performance. It will also promote the objectives of the pollution prevention planning and toxics reduction provisions of the *Canadian Environmental Protection Act, 1999*, with a primary goal to prevent spills to groundwater, surface water and sewers.
- The Toronto Region Sustainability Program is intended to advance the environmental performance of small to medium-sized enterprises and manufacturing facilities. Specific objectives include taking action in reducing smog precursors and moving to zero generation of toxic wastes. The program will be delivered on Environment Canada — Ontario Region's behalf by the Ontario Centre for Environmental Technology Advancement in partnership with Environment Canada's National Office of Pollution Prevention, Ontario Ministry of the Environment, City of Toronto and various stakeholders. The program activities will start in 2001–2002 and last three to five years.
- A technical pollution prevention study was carried out at a textile factory in Quebec by Environment Canada to identify potential pollution prevention projects. The study uncovered numerous opportunities for pollution reduction, including 10 to 20% reduction in water consumption, 10% reduction in consumption of chemical reagents, 5% reduction in energy consumption and an overall reduction in the volume of solid waste.
- Western Economic Diversification Canada provided funds to the Environmental Services Association of Alberta to design and operate a website to showcase Canadian commercial technologies or processes that reduce greenhouse gas emissions or improve energy efficiency. Currently, the site is open to accept solutions, with the hope that the site will contain 200 solutions by March 2002. The site can be found at <http://www.ghgshowcase.com>.
- Environment Canada developed a joint plan of action with the Atlantic Ready-Mix Concrete Association in March 2001. The outcomes of the plan will include a Best Management Practice guide for Association members, a "Due Diligence" article for the Association newsletter and 40 site inspections throughout Atlantic Canada for 2001–2002.

Progress with the Canadian Public

Federal pollution prevention strategy goal: Provide access to the information and tools necessary to implement pollution prevention practices

WHAT IS SUSTAINABLE CONSUMPTION?

"The use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations."

Source: Symposium-Sustainable Consumption. Oslo, Norway; 19-20 January 1994.

Citizen-Driven Activities

Since 1993, an overabundance of flies has bothered residents near Forest Pond, in Goulds, Newfoundland. Elevated pond nutrients along with runoff from some community activities, septic tanks and farms were major problem sources. With financial support from Environment Canada's EcoAction fund, the Goulds Recreation Association implemented a pesticide-free solution over June to October 2000. For short-term relief, five light traps were installed to intercept flies, and for long-term results, terrestrial and aquatic vegetation was planted to reduce nutrient buildup and provide natural predator habitat.

Health Canada provided support to communities wanting to develop their own green or healthy committee with the Ontario Healthy Communities Coalition. Community health committees established under this program tackled a variety of issues, such as pesticide reduction campaigns (including holding workshops, providing garden tours and promoting pesticide substitutes), promoting energy efficiency through Natural Resources Canada's EnerGuide for Homes program and promoting active transportation through events such as bicycle festivals. Health Canada contributions included management, fundraising and mediation.


ECOACTION FUND


The EcoAction Community Funding Program is an Environment Canada program that provides financial support to community groups for projects that have measurable, positive impacts on the environment. Priority for funding is given to projects that will achieve results in the following areas: clean air and climate change, clean water and nature. To view stories on community groups in action that have improved their local environment and achieved positive and sustainable results, visit <http://www.ec.gc.ca/ecoaction>. Some examples of 2000-2001 projects that received EcoAction funding are provided below:


- Approximately one-third of homes in Newfoundland and Labrador are heated with oil, with domestic oil spills being a significant percentage of all oil spills in the province. A "best practices" project helped build public awareness of the health, environmental and financial aspects of spill prevention and home oil tank purchasing, installation and maintenance. Some 1,500 oil tank inspections were conducted in seven towns. These visits and other promotional activities should improve storage practices and reduce domestic oil spills.
- The St. Lawrence River Institute of Environmental Sciences initiated a project that resulted in the diversion of 252 kilograms of toxic lead from the St. Lawrence River watershed. This was accomplished by educating community members on the negative effects of lead sinker and jig use and through the implementation of sinker and jig exchange programs in the City of Cornwall, Ontario, and outlying areas. Through the project, over 800 participants exchanged their lead sinkers and jigs for non-toxic alternatives.
- In Corner Brook, Newfoundland, the Western Environment Centre focused its efforts to reduce non-economically driven pesticide use. Pesticide-free community gardens and composting centres exposed 3,000 citizens to various organic gardening techniques. Visits to home and cottage owners provided information on, and alternatives to, pesticide use. Results have indicated that 500 litres of the pesticide diazinon and 1500 kilograms of Weed and Feed were diverted from use.
- The Fédération des associations de lacs et de rivières de la vallée de la Gatineau introduced a program to reduce phosphate discharges affecting aquatic environments. The program covers more than 12 lakes and some 2,438 seasonal and year-round river front property owners. All residents were visited in an effort to educate and persuade them to change their consumption habits in favour of domestic maintenance products that are less harmful to the environment.
- The Mercury Awareness Program for Students involved the development and delivery of mercury awareness information materials and workshops for students in grades four to six in the Thames Valley School Board and the London Middlesex Separate School Board in Ontario. The goal of the project was to increase students' awareness of mercury as a household toxic substance and to reduce the amount of mercury going to landfill by 10%.

Section 2: Progress with the Canadian Public (continued)

Public Awareness Campaigns


Health Canada supported Go for Green's Active Transportation program. The program encourages Canadians to choose active modes of transportation that contribute to a cleaner environment and improved personal health. This year's projects included the development of the following publications: a report entitled "Fitting Places: How the Built Environment Affects Active Living"; fact sheets entitled "Making the Case for Active Transportation"; and a guidebook entitled "Walk and Role: A Guide to Active Transportation to, from and at the Workplace." The Active and Safe Routes to School Program is also supported by Health Canada and coordinated through Go for Green's Active Transportation program. This year's event attracted 840 Canadian school participants, and 74 schools received funding to encourage children to use an active mode of transportation to get to school. 

The Conservation Corps of Newfoundland and Labrador is participating in a two-year program of home environmental assessments to reduce energy use, water consumption and chemical use. Approximately 7,200 visits are planned in the Happy Valley-Goose Bay area, 7,200 for the St. John's area and 7,200 other visits in Newfoundland and Labrador. The project will benefit the environment and human health by reducing greenhouse gas emissions, improving water quality and reducing exposure to chemicals — and, in many cases, saving money. Initiated in summer 2000, the project received money from the Environment Canada Community Animation Program for staff training on the EnerGuide, environmental auditing and social marketing. 


"Earth Tones" is a television series focusing on environmental science taking place at Environment Canada, Agriculture and Agri-Food Canada, Fisheries and Oceans Canada, Health Canada and Natural Resources Canada. The series of "Millennium Moments" profiled the past work and scientific breakthroughs of government scientists that continue to benefit Canadians. Topics include wildlife and habitat protection and chlorinated solvents. 



The Conservation Corps of Newfoundland and Labrador encourages home owners to conduct environmental assessments on their homes to help reduce energy use, water consumption and chemical use.

Atlantic Canada universities are turning green. The Mount Allison University Environmental Policy Steering Committee is responsible for implementing the university's environmental policy, conducting biannual audits and coordinating other related projects. Similarly, the Acadia Environmental Society is creating an environmental policy for the university and is working towards ISO 14001 certification. The Sierra Youth Coalition at Dalhousie University is involved in similar work. All groups received Climate Action Plan funding support for audit methodology training and skill building in pollution prevention auditing on solid waste, energy and water consumption. 

Environment Canada — Quebec Region provided the Association pour l'air pur de Lanaudière with technical support for a regional public awareness campaign about the impact of wood heating on air quality. Approximately 600 single-family homes were visited, and owners were encouraged to practise more environmentally friendly wood heating. During the visits, Environment Canada

brochures on heating with wood were distributed, and a program promoting the sale of less-polluting wood-burning stoves, through incentives such as discount coupons, was introduced. 

Environment Canada initiated the Atlantic Coastal Action Program (ACAP) as a means of mobilizing local communities to address their own environmental and developmental challenges. ACAP Cape Breton Inc. and the Bedeque Bay Environmental Management Association Inc. (Prince Edward Island) undertook projects to demonstrate to the community the value of a community garden. The projects promoted alternatives to traditional garden chemicals, reduced water consumption and increased earth-friendly practices. The project resulted in a total of 38 community gardeners practising environmentally friendly gardening methods. In a separate ACAP

Section 2: Progress with the Canadian Public (continued)

THE CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) ENVIRONMENTAL REGISTRY

The CEPA Environmental Registry is a comprehensive source of public information relating to activities under the *Canadian Environmental Protection Act, 1999* (CEPA 1999). In addition to providing up-to-date copies of current CEPA instruments, the primary objective of the Environmental Registry is to encourage and support public participation in environmental decision-making, by facilitating access to documents arising from the administration of the Act.

To access the Registry, visit <http://www.ec.gc.ca/CEPARRegistry/>.

Cape Breton Inc. activity, a vehicle emissions clinic was held in Sydney, Nova Scotia. Volunteers conducted visual examinations and exhaust emission tests and measured pollutant levels of hydrocarbons and carbon monoxide. Drivers received a copy of their test results along with tips on improving fuel efficiency and alternatives to car transportation, such as carpooling, biking, walking and public transit. Results include 340 vehicles tested at the clinic, raised public awareness regarding vehicle emissions and improved air quality in general.

Access to Information

Natural Resources Canada's Auto\$mart Program encourages motorists to buy, drive and maintain their vehicles in ways that reduce fuel consumption, save money and benefit the environment. Auto\$mart aims to improve the energy efficiency practices of private motorists by influencing car purchase decisions, on-road driving practices and vehicle maintenance practices through the provision of information to drivers. Last year, nearly 212 new driver educators, for a total of 1,050 active educators under the program, used the Auto\$mart driver kits to reach about 55,000 novice drivers. Over 855,000 drivers have received Auto\$mart driver kits since the start of the program.

The Canadian Pollution Prevention Information Clearinghouse (CPPIC) is an Internet tool that links Canadians with the information they need to practise or support pollution prevention. CPPIC provides a variety of pollution prevention documents, such as technical reports, guides, regulations, training materials and success stories. CPPIC has enhanced its content to reflect the growing interest in pollution prevention. New sections include the *Canadian Environmental Protection Act, 1999*, pollution prevention funding and pollution prevention planning. The database continues to expand and now includes over 1,200 pollution prevention references classified under 40 different industrial sectors. In addition, the CPPIC site has been redesigned to make it more accessible to Canadians. Visit the new CPPIC at <http://www.ec.gc.ca/cppic>.

The Canadian Pollution Prevention Roundtable is recognized as a unique opportunity to stimulate action on pollution prevention efforts across Canada. Sessions at the 4th roundtable — Pollution Prevention in Action — held in Toronto, focused on the latest in pollution prevention policy, technical assistance and resources. Highlight sessions included Community-based Social Marketing — Encouraging Sustainable Change in Behaviour, Implementing Pollution Prevention Planning and a showcase of business case studies from a wide range of sectors. With funding support from Environment Canada, the Canadian Centre for Pollution Prevention, a non-profit organization, coordinates the roundtable. For more information, visit <http://www.c2p2online.com>, and click on "Conferences & Training."

TerraChoice Environmental Services Inc., on behalf of Environment Canada, manages and delivers the Environmental Choice™ Program (ECP). The ECP is an eco-labelling program that helps individuals, corporations and governments make informed purchasing decisions to reduce their environmental impacts. About 3,000 brand name products in about 125 product categories now bear ECP's EcoLogo, including appliances, cleaners, office equipment, electricity and paints. For more information, visit <http://www.environmentalchoice.com>.

Environment Canada's Pollution Prevention Success Stories website has been redesigned and improved. The website currently recognizes over 70 Canadian organizations, companies and individuals who are making a difference in pollution prevention. The stories include project descriptions, an outline of environmental and economic benefits and key contacts for more information. Stories cover over 30 different sectors and include water and energy conservation; process modifications; product reformulation and/or redesign; raw material substitution; improvements in housekeeping, maintenance, training and/or inventory control; and new or clean technologies. For story details, visit <http://www.ec.gc.ca/pp>.

Section 2: Progress with the Canadian Public (continued)

Addressing Climate Change

The Climate Change Action Fund, administered by the Climate Change Secretariat for the Government of Canada, contributed funding for 152 partnered projects that raised Canadians' awareness of climate change and promoted action to reduce

greenhouse gas emissions. Highlights include over 11,000 households participating in home visits that encouraged energy efficiency and raised awareness of climate change and thousands of Canadians participating in new or expanded ride-share programs. New climate change classroom materials,

teacher workshops and a variety of touring climate change interactive presentations to schools across the country gave students an opportunity to participate in action-oriented programs to reduce their greenhouse gas emissions. Over 2 million Canadians learned about climate change through museum, science and nature centre exhibits, local public awareness campaigns, conferences, workshops and websites. Businesses have also come on board by providing tools and information to make changes in daily operations and by encouraging employees to reduce their greenhouse gas emissions at work, at home and on the road. For more information, visit <http://www.ec.gc.ca/climate/action-e.html>.

The Government of Canada Action Plan 2000 on Climate Change is a five-year program, begun in November 2000, that will reduce greenhouse gas emissions by 65 megatonnes per year in key sectors of the economy. Action Plan 2000 will reduce emissions by requiring Canadians to make changes in the way they produce and use energy, as well as in the way that people and goods are transported. Environment Canada will play a lead role in developing the plan of action for taking Canada the rest of the way to its Kyoto commitment and in continuing its international efforts on climate change.

ENVIRONMENT CANADA'S NATIONAL OFFICE OF POLLUTION PREVENTION PLAYED A LEAD ROLE IN PROMOTING AND COORDINATING YOUTH PARTICIPATION IN SEVERAL DOMESTIC AND TWO INTERNATIONAL EVENTS.

Examples include:

- *Canadian Pollution Prevention Roundtable 2000*: Two members of the Youth Roundtable on the Environment (YRTE) were provided with an opportunity to get acquainted with pollution prevention initiatives and programs and to expand their networks in that field. They were asked to report their experiences back to the YRTE to promote future involvement in the area of pollution prevention.
- *Experts Meeting on Product and Supply Chain Policies and Tools for Sustainable Development*: The Canadian youth delegate on the United Nations Environment Programme (UNEP) Youth Advisory Council was sponsored to participate in this experts meeting to discuss the future of innovative approaches to product and system design.
- *UNEP'S 6th International High-Level Seminar on Cleaner Production and the International Pollution Prevention Summit*: Youth participation and representation in these two international events included one member of the YRTE and two members of the UNEP Youth Advisory Council (one from Canada and one from Cameroon). These youth actively participated on the Action Planning group that addressed the theme "Changing Cultures and Behaviours." The ideas and opinions of the youth representatives were profiled and printed in a daily newsletter throughout the duration of the Summit.

Along with increasing their awareness of pollution prevention issues, the youth representatives shared their dynamic and insightful views of today's environmental concerns. Youth representatives play an important role as stakeholders in the information-gathering process.

TRACKING PROGRESS AGAINST POLLUTION PREVENTION — A FEDERAL STRATEGY FOR ACTION*

Goal: Provide access to the information and tools necessary to implement pollution prevention practices

Actions:	Status:	Examples:
1. Provide information that illustrates how pollution prevention fits into daily activities	Ongoing	<ul style="list-style-type: none">• Active Transportation Initiative• EcoAction program• Canadian Centre for Pollution Prevention
2. Create a national pollution prevention clearinghouse	Complete	<ul style="list-style-type: none">• Canadian Pollution Prevention Information Clearinghouse
3. Encourage consumers to use their purchasing power to promote pollution prevention	Ongoing	<ul style="list-style-type: none">• AuditSmart Program• Environmental Choice Program• Wood Take-Backout Program

* This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention with individual Canadians.

Progress with the International Community

Federal pollution prevention strategy goal: Participate in international pollution prevention initiatives

International Agreements and Technology Transfer

In December 2000, Canada and the United States signed the Ozone Annex to the 1991 Canada-U.S. Air Quality Agreement. It commits both governments to significantly reduce the creation of smog-causing pollutants — nitrogen oxides and volatile organic compounds — in Ontario, Quebec and the northeastern and midwestern United States. The goal is to implement cost-effective emission reductions through energy efficiency, renewable energy, cleaner fuel and alternative technology. It is estimated that the total nitrogen oxide reductions in the Canadian transboundary region will be 44% year-round by 2010. The Ozone Annex builds on the earlier success in reducing acid rain under the Canada-U.S. Air Quality Agreement.

Canada continued its international leadership role in protecting the stratospheric ozone layer by accepting a new amendment to the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer. Canada was one of the first countries to accept this amendment, internationally known as the Beijing Amendment, to ensure stronger controls on the production and consumption of chemicals that deplete the ozone layer. Subsequently, Canada's *Ozone-Depleting Substances Regulations* 1998 were revised to enable Canada to accept the Beijing Amendment, improve controls on ozone-depleting substances and address administrative issues. These amended regulations came into force on January 1, 2001.

Because of atmospheric circulation, persistent organic pollutants (POPs) travel great distances from their sources, posing significant risks to the health of Canadians. This is of particular concern to northern Aboriginal populations dependent on traditional foods. Even though Canada has banned or restricted their use, most POPs of concern are transported from



The UNEP 6th International High-Level Seminar on Cleaner Production brought together senior decision-makers from over 85 countries to address a variety of topics surrounding cleaner production.

foreign sources through the atmosphere into Canada, where they accumulate in the food chain. Canada was the first country in the world to establish an international fund to deal with POPs. The Canadian International Development Agency provided \$20 million to the Canada POPs Fund, administered by the World Bank, to help developing countries and countries with economies in transition to reduce or eliminate the release of POPs, including certain pesticides (e.g., DDT) and industrial chemicals (e.g., PCBs). On a similar note, Health Canada was part of the Canadian delegation that led in the development and negotiation of a global agreement on banning the manufacture, sale, use and trade of POPs. The agreement was available for signing in the spring of 2001.

As part of the Climate Change Action Fund, Technology Early Action Measures (TEAM) provides financial support for international demonstrations of climate change technologies. The Climate Change Office of Industry Canada contributed salary dollars to TEAM administration and participated in the inter-departmental review of prospective projects. As an example of TEAM's work, Western

Section 2: Progress with the International Community (continued)

INTERNATIONAL POLLUTION PREVENTION SUMMIT

In October 2000, over 250 leading practitioners and decision-makers from more than 60 countries, representing all regions of the world, gathered in Montreal for the International Pollution Prevention Summit. The Summit produced a series of action plans for furthering sustainability goals in the areas of changing behaviour, education, finance and government policy.

The Summit also saw the launch of the Global Cleaner Production Network. This Internet-based Network will be designed to collect and share successful practices and new ideas on eliminating pollution. It will also serve as a virtual meeting place for the hundreds of pollution prevention roundtables and sustainability and cleaner production networks worldwide.

The Canadian Centre for Pollution Prevention and Environment Canada's National Office of Pollution Prevention hosted the Summit with guidance from an international Steering Committee. The Millennium Bureau of Canada was a core financial supporter. For more information, visit <http://www.c2p2online.com>, and click on "Conferences & Training."

Preceding the Summit, Canada hosted the United Nations Environment Programme's 6th International High-Level Seminar on Cleaner Production, bringing together senior decision-makers in cleaner production from over 85 countries. Panels addressed a variety of topics, including facing new challenges, the International Declaration on Cleaner Production, technology innovations and cleaner production, twinning industrial ecology and cleaner production, and perspectives for the next decade. For more information, visit <http://www.uneptie.org/CP6>

Economic Diversification Canada, on behalf of TEAM, administered an alternative method to industrial waste disposal while reducing greenhouse gas emissions. The project involved the composting of industrial and municipal waste streams at the Edmonton Waste Management Centre, including industrial sludge, oily waste and biosolids. The compost was sold in the landscaping market. [Image]

The Canadian International Development Agency (CIDA) manages the \$100 million Canada Climate Change Fund on behalf of the Government of Canada. Through this fund, CIDA promotes, facilitates and/or finances the transfer of environmentally sound technologies that address the causes and effects of climate change to developing countries. The four programming areas are emission reductions, carbon sequestration, adaption and core capacity-building. Transfers are completed in such a way as to build knowledge, equipment and product capacity in the recipient country. Two rounds of project selection, one in the fall of 2000 and the most recent in the spring of 2001, have been completed. [Image]

Through partnerships with the Canadian International Development Agency (CIDA), Natural Resources Canada promotes environmental stewardship in minerals and metals mining abroad. During 2000–2001, Natural Resources Canada managed contracts on behalf of CIDA in Guyana, Brazil and Zambia. The objective of these projects is to transfer Canadian technical expertise in environmental management related to mining in order to improve the capability of these countries' governments to manage their mining interests, thereby reducing the risks to human health or the environment. [Image]

With financial support from the Canadian International Development Agency, Environment Canada, through the Ontario Centre for Environmental Technology Advancement and ETV Canada Inc., continued introducing the principles, protocols and benefits of environmental technology verification (ETV) adapted from Canada's model to the international community. Phase 1 began in 1999–2000 with the transfer of expertise to the People's Republic of China. The transfer continued in

2000–2001, as well as the development and approval to implement Phase 2 — Development of the Chinese Environmental Technology Verification System — in the next year. Chinese stakeholders regard ETV as a valuable tool and methodology for assessing the performance of pollution prevention and control technologies through an objective third-party rigorous process that establishes credibility for both the buyer and the vendor. In 2000, the transfer of ETV expertise also commenced in Indonesia. Additional work for adapting the concept in Indonesia will be continued once funding becomes available. India has also expressed interest in ETV, and a workshop is under consideration to introduce the ETV concept and integrate it into India's pollution prevention policies. [Image]

North, Central and South America

The Environmental Services Association of Alberta, with funding from the Canadian International Development Agency, works with the Latin American association of 27 oil and gas companies (ARPEL) to enhance the ability of member companies to develop and implement environmental protection and management plans, programs and guidelines. In order to achieve the objective of reduced atmospheric emissions and increased energy efficiency within the Latin American oil and gas industry, seven environmental guidelines were developed and four ARPEL member companies were selected to participate in direct technical assistance to the facilities during 2000–2001. [Image]

Section 2: Progress with the International Community (continued)

Asia and Africa

With the support of the Canadian International Development Agency, the China–Canada Cooperation in Cleaner Production project was created in 1995 to assist China in implementing cleaner production in priority sectors. During 2000–2001, the project trained Chinese policy and technical experts so they can train others in the realm of audits, guidelines and cleaner production solutions. A draft of national cleaner production legislation was proposed and is now under review. A number of policy and guideline documents are also under way. One set of guidelines identifies 10 cities as demonstration sites for the promotion and introduction of cleaner production. The guidelines also identify several priority industrial sectors — petrochemical, metallurgy, chemical (nitrogen fertilizer, phosphate fertilizer, chlor-alkali and sulphuric acid), pulp and paper, fermentation and beer-making, and ship building. Initial success at a fertilizer plant and paper mill has resulted in the application of similar solutions

to eight fertilizer plants and six pulp and paper mills. The six paper mills combined have achieved annual reductions in water (6 million tonnes), coal (11,000 tonnes) and fibre removed from waste (15,000 tonnes). For more information on China's cleaner production projects, visit <http://www.chinacp.org.cn>.

Jiangsu Small and Medium-Sized Enterprises (SME) Applied Management and Environmental Project provided assistance in management and in environmental and business planning capacity to SMEs. The Jiangsu provincial government and the Canadian International Development Agency sponsored this project. Results achieved include those at the Gaoyou Feida Chemical Plant: a 24% reduction in the volume of effluent, a reduction in the concentration and volume of chemical oxygen demand and sulphur released and a 15% drop in the cost of production.

TRACKING PROGRESS AGAINST POLLUTION PREVENTION — A FEDERAL STRATEGY FOR ACTION*

Goal: Participate in international pollution prevention initiatives

Actions:	Status:	Examples:
1. Stimulate a shift to pollution prevention in international organizations	Ongoing	<ul style="list-style-type: none">• Asia-Pacific Economic Cooperation• United Nations Environment Programme
2. Incorporate pollution prevention into international standards	Ongoing	<ul style="list-style-type: none">• Canada's introduction of environmental technology verification to the international community• Canada–China Cooperation in Cleaner Production
3. Advance pollution prevention through international protocols and agreements	Ongoing	<ul style="list-style-type: none">• Canada–U.S. Air Quality Agreement• Kyoto Protocol• Montreal Protocol

* This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention with the international community.

Section 2: Progress with the International Community (continued)

The Canadian International Development Agency and the Department of Technical and Economic Co-operation of Thailand provided technical assistance to Cambodia, Lao People's Democratic Republic (PDR) and Vietnam under the Canada-Thailand Trilateral Project. Through 17 sub-projects, participants gained knowledge through training and information exchange in the areas of solar photovoltaic electrification, biogas energy and clean coal technology. The use of solar power was demonstrated as a viable energy source for small villages in remote locations. In addition, alternative energy sources (solar photovoltaic electrification, biogas and coal-based briquette production) were introduced in rural areas throughout Lao PDR. An educator's manual for promoting the energy conservation awareness of youth was introduced in Vietnam, Cambodia and Lao PDR.

In 2000, the Canadian International Development Agency, in partnership with Resource Efficient Agriculture Production (REAP, an independent research and development organization), initiated the Southern Negros Sustainable Agriculture Demonstration Project in the main sugar-growing region of the Philippines. The project aims to actively rehabilitate the natural resource base of the region through the adoption of ecological farming practices. Through informal information sharing and farmer-to-farmer training, farmers are encouraged to explore natural pest control methods to replace widely used synthetic pesticides. So far, 60% of farmers in five communities have used these methods, resulting in improved water and soil quality. Other benefits of the program include reductions in greenhouse gas emissions through minimized crop residue burning and decreased use of fossil-based energy inputs.

UPCOMING PROJECTS

At the Sixth Conference of the Parties to the United Nations Framework Convention on Climate Change, held in The Hague in November 2000 and resumed in Bonn in July 2001, 178 nations concluded a landmark agreement on the rules for implementing the Kyoto Protocol. Immediately afterward, Prime Minister Jean Chrétien indicated that the agreement opened the way for Canada's ratification of the Kyoto Protocol next year, following full consultations with the provinces and territories, stakeholders and other Canadians. With the acknowledgement in the Bonn Agreement that "sinks" can play a major role in addressing climate change, as well as the initiatives funded in Budget 2000 and in the Government of Canada Action Plan 2000 on Climate Change, Canada is on the way to addressing half of the target established in the Kyoto Protocol of 6% below 1990 levels of greenhouse gas emissions.

Moving Forward

Canada has a strong record of promoting economic prosperity, social development and environmental progress both nationally and internationally.

On the journey towards sustainable development, federal departments will continue to learn and improve. This growth is evident through the results achieved since the creation of the federal pollution prevention strategy. With a refreshed emphasis on tracking progress against the strategy, new and continuing initiatives will promote the use of processes, practices, materials, products, substances and energy that avoid or minimize the creation of pollutants and waste.

This report, *Progress in Pollution Prevention 2000–2001*, demonstrates the Government of Canada's commitment to "institutionalize pollution prevention across all federal government activities," as stated in *Pollution Prevention — A Federal Strategy for Action*. This report will also serve as an essential reference as Canada prepares to present its environmental progress at the Second Earth Summit (Rio+10) in 2002.

Environment Canada will use the tools in the *Canadian Environmental Protection Act, 1999* to ensure protection of the environment and human health. The Act underscores the importance that the Government of Canada places on preventing risks caused by toxic substances to all Canadians and the environment in which they live and its commitment to sustainable development.

Environment Canada will also continue to work with other federal departments to ensure a more integrated approach to pollution prevention policy development that fosters innovation. While the federal government has achieved significant progress on greening its operations, further efforts are required to broaden and enhance progress made on greening its policies and programs. To advance this work and profile successes, all federal departments are encouraged to record their pollution prevention efforts during the year for inclusion in upcoming annual progress reports.

Having developed consensus and commitment to a coordinated approach, federal departments will continue to "green" operations. Many departments have shown leadership in setting best practices as well as specific performance measures. A focus will be on sharing the lessons learned from this process with all federal departments. Strengthening environmental baseline data and developing practical means to report progress will continue to be a priority.

The Government of Canada will continue to advance scientific knowledge and communicate to Canadians the impacts of toxic substances and substances of concern on human health and the environment. A sound foundation of scientific knowledge will support the prevention and reduction of threats to the environment and health of Canadians.

Work will move forward on the development of emission reduction strategies to meet Canada-wide Standards for air quality. Jurisdictions have decided to consult further with industry, municipal, environmental, health and Aboriginal groups on the development and implementation of these standards on substances such as mercury, benzene, and dioxins and furans.

Access to information, tools and funding will remain essential to recognize and encourage the abilities of individuals and communities to make better, informed decisions that will protect the environment.

The pollution prevention successes achieved in 2000–2001 leave the Government of Canada well positioned to address environmental issues in an innovative and effective way, giving Canada a competitive edge in the industries of the future.

Moving Forward (continued)

The Pollution Prevention Coordinating Committee encourages all Canadians to identify and pursue opportunities for pollution prevention. Federal departments can facilitate and coordinate partnerships with businesses, environmental groups, scientists, Aboriginal communities, other governments and individual citizens. By continuing to work together towards the goal of avoiding the creation of pollutants and waste, Canadians will protect the environment and human health and secure a sustainable economy for generations to come.

*On the Internet, view this report
at <http://www.ec.gc.ca/p2progress>.*



Annual meeting of the Pollution Prevention Coordinating Committee
in St. John's, Newfoundland, June 2001

*To view Pollution Prevention —
A Federal Strategy for Action, visit
<http://www.ec.gc.ca/pollution/strategy>.*

Appendix I

Pollution Prevention Coordinating Committee Membership List

ENVIRONMENT CANADA
National Office of Pollution Prevention
James Riordan (Chairperson)
John de Gonzague (alternate Chairperson)
Kathi De (Coordinator)

Environmental Technology
Advancement Directorate
Patricia Mitchell / Adrian Steenkamer

Regions
Rodger Albright
Atlantic Region
Thanh Thao Pham
Quebec Region
Brad Cumming / Ron Nobes
Ontario Region
David Noseworthy
Prairie & Northern Region
Andrew Green
Pacific & Yukon Region

Interdepartmental Network
on Sustainable Development Strategies
Craig Ferguson / Stefania Trombetti

Federal Committee on Environmental
Management Services
Richard Arseneault

NATURAL RESOURCES CANADA
Richard Arseneault / Chris Callaghan

INDUSTRY CANADA
Environmental Affairs Branch
Adam Moser

NATIONAL DEFENCE
Directorate of Environmental
Protection
Holmer Berthiaume / Sean Baptiste

CANADIAN INTERNATIONAL
DEVELOPMENT AGENCY
Environment Division
Khalid Hilal

FISHERIES AND OCEANS CANADA
Real Property Management Directorate
Francine Richard

PUBLIC WORKS AND
GOVERNMENT SERVICES CANADA
Environmental Services
David Chappell

TRANSPORT CANADA
Environmental Affairs
Alec Simpson / Saleem Sattar / Russ Smith

DEPARTMENT OF FOREIGN AFFAIRS
AND INTERNATIONAL TRADE
Environmental Services
Jaye Shuttleworth

AGRICULTURE AND AGRI-FOOD
CANADA
Corporate Services Branch - Asset
Management and Capital Planning
Directorate - Engineering Services
Pierre Laplante

HEALTH CANADA
Environmental Management
Systems Division
John Horricks / Karen Prince

Members can be reached through the
Government of Canada Employees Directory at
<http://direct.srv.gc.ca/>.

Appendix II

Federal Department and Agency Contributors to Progress in Pollution Prevention 2000–2001

Environment Canada
Agriculture and Agri-Food Canada
Atlantic Canada Opportunities Agency
Canadian Food Inspection Agency
Canadian International Development Agency
Citizenship and Immigration Canada
Economic Development Canada
Foreign Affairs and International Trade
Health Canada
Human Resources Development Canada
Industry Canada
National Defence
Natural Resources Canada
Public Works and Government Services Canada
Statistics Canada
Transport Canada
Western Economic Diversification Canada

*On the Internet, view this report
at <http://www.ec.gc.ca/p2progress>.*

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For more information about the **Environmental Choice[™] Program**, please visit the ECP website at www.environmentalchoice.com or telephone (613) 247-1900.

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IN POLLUTION PREVENTION 2001-2002

SEVENTH ANNUAL REPORT
of the Pollution Prevention
Coordinating Committee



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Message From the Minister of the Environment

It is my pleasure to present the seventh annual report of the Government of Canada's Pollution Prevention Coordinating Committee (P2C2)—*Progress in Pollution Prevention 2001–2002*.

The goal of pollution prevention is to avoid the creation of pollutants rather than trying to manage them after they have been created. This fundamental shift in emphasis is not only a sound environmental strategy, it is good business.

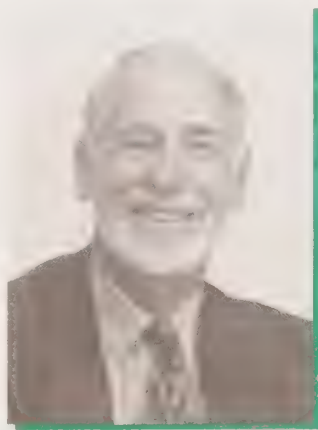
In 1995, the Government of Canada adopted "*Pollution Prevention—A Federal Strategy for Action*". The Strategy commits the federal government to demonstrating continuous improvement towards pollution prevention as a means of achieving sustainability. It also pointed to the need to make pollution prevention a part of our everyday choices and decisions, whether as governments, companies, communities, or individuals. Our first progress report included information submitted by six departments, and now 20 federal departments and agencies have taken on the challenge and are reporting on their successes and achievements.

In April 2002, I was privileged to attend the Canadian Pollution Prevention Roundtable in Quebec City, and to listen to a presentation by two young Canadians on the ecological footprints of our everyday personal choices. Their presentation addressed the same issues raised in the federal government's pollution prevention strategy and their message was striking because of its clarity and simplicity; every decision and choice we make as individuals, workers, and corporate or government leaders, has a potential impact on the world in which we live. Understanding our impacts on the environment and addressing them through the adoption of a preventive ethic are critical to achieving environmental sustainability.

Progress in Pollution Prevention 2001–2002 is a reflection of the environmental choices and decisions made by federal government departments and agencies. It is also reflective of an increased awareness of their ecological footprint on the

environment. The Government of Canada is committed to lead by example by incorporating pollution prevention practices within our own operations, fostering a national pollution prevention effort, striving to achieve a climate in which pollution prevention becomes an important consideration in the private sector, providing access to all Canadians to information on pollution prevention and participating in international pollution prevention initiatives.

For 2001–2002, federal government departments reported impressive reductions in greenhouse gas emissions through the implementation of activities, including alternative fuel policies for federal vehicle fleets, energy-saving initiatives for federal facilities, and the establishment of partnership programs with other levels of government and the private sector.



David Anderson

Honourable David Anderson, P.C., M.P.

Minister of the Environment

These partnership programs included EnviroClub™, the Canadian Industry Program for Energy Conservation, the Toronto Region Sustainability Program, and many more. Government departments also reported reductions in uses and releases of toxic substances, reductions in amounts of waste generated, and improvements in the implementation of green practices throughout their programs. In some instances, departments have moved to the next step by not only implementing pollution prevention in their own operations, but also examining and revising their policies and programs to encourage others, nationally and internationally, to implement pollution prevention in their practices and activities.

This 2001–2002 report sets out the Government of Canada's progress to date in achieving the goals it set in 1995. The report emphasizes the breath of our acquired knowledge about pollution prevention and its strong links to economic competitiveness, providing the basis for even greater pollution prevention successes in future. Further, it challenges all of us to do better. Together, we must strive to demonstrate continual improvement in the years to come. I welcome your views on this report and on our progress in meeting our pollution prevention commitments.

Executive Summary

Pollution prevention remains at the forefront in meeting the objectives of the federal government's priorities on clean air and water.

THE PROGRESS IN POLLUTION PREVENTION REPORT GETS AROUND!

Over 2500 copies of the 2000–2001 *Progress in Pollution Prevention* report were distributed last year. The copies were circulated to over 25 industry and non-government stakeholders and reached the desks of all federal Cabinet Ministers and Deputy Ministers and all provincial and territorial Environment Ministers. The report is also made available in numerous university libraries and international institutions. Copies were made available at various environmental events and conferences, and 1800 people per month downloaded the report from the National Office of Pollution Prevention website.

On the Internet, view this report at <http://www.ec.gc.ca/p2progress>.

Progress in Pollution Prevention 2001–2002 showcases the federal government's achievements in incorporating pollution prevention into its own activities and those of its partners. This is the seventh annual report prepared by the federal Pollution Prevention Coordinating Committee. The report focuses on the progress made in the year ending March 31, 2002, against the goals stated in the Federal Pollution Prevention Strategy and Action Plan and demonstrates the federal government's leadership and commitment to pollution prevention.

Pollution Prevention—A Federal Strategy for Action sets priorities for action based on five target sectors: federal departments and agencies, other orders of government, the private sector, individual Canadians, and the international community. By directing efforts towards preventing pollution instead of managing pollution after it has been created, the federal strategy works towards the ultimate goal of sustainable development.

Changes to the Format of the Report

This year's report has been designed to more clearly show the linkages among pollution prevention, environmental management systems, and sustainability. *Progress in Pollution Prevention 2001–2002* also features a sample checklist within Section 2D on "Progress with the Canadian Public" (p.44) that provides guidance in identifying pollution prevention opportunities within the household. The last section of the report has been revamped and is now a reflection on Canadian pollution prevention trends and future opportunities. A reader survey was also developed and can be found in the middle of this report.

This Year's Accomplishments

The purpose of pollution prevention is to focus on the long-term process improvements and best management practices that reduce or eliminate waste before it is generated. Based on this long-term reality, many federal departments have multi-year commitments to pollution prevention projects and programs. As a result, this report is dedicated to tracking the progress of new and ongoing pollution prevention projects

and programs. The Government of Canada is advancing pollution prevention through improving and understanding the linkages among pollution prevention, environmental management systems, and sustainability; strengthening criteria for voluntary initiatives as a complement to regulation; expanding its network of partnerships with other orders of government; replicating successes and sharing lessons learned; and strengthening partnerships with other countries to advance pollution prevention. The federal government continues to work with the private sector on specific pollution prevention initiatives, to further demonstrate the economic value associated with waste minimization.

Progress within the Federal Government

Managing the *Canadian Environmental Protection Act, 1999* requirements for toxic substances remained a key focus. The development of a Pollution Prevention Planning course and certificate was also supported.

Federal departments demonstrated leadership by integrating pollution prevention in the operations of their own facilities. Prevention-based measures were taken in the following areas: waste reduction and management, water/energy conservation, vehicle fleet management, procurement, land management, training and awareness, and behaviour change. The Sustainable Development in Government Operations Coordinating Committee continued its collaborative efforts to strengthen departmental sustainability programs through facilitating the exchange of resources on best practices.

Progress with Other Governments

The development of regional or Canada-wide strategies for the management of pollutants and toxic substances continues to be relevant and a high priority through the Canadian Council of Ministers of the Environment. Municipal wastewater has been a particular focus for the federal, provincial, and territorial governments. Programs addressing greenhouse gases and smog were strong nationally and are reflected throughout this report. Advocating energy conservation was one of many strategies addressing these concerns. Activities with local

Executive Summary (continued)

governments, such as the City of Toronto, Halifax Regional Municipality, and various communities in the Vancouver area, demonstrated the effectiveness of locally based action. Key partnerships were made with Aboriginal and northern communities to help Canadians reduce pollutants and address climate change.

Progress with the Private Sector

Several federal departments have been involved in the success of voluntary agreements and programs that focus on industries such as automotive manufacturing, chemical processing, oil and gas, furniture manufacturing, and metal finishing. Providing resources for the delivery of demonstration projects, guidance materials, and training programs further advances the adoption of the preventative approach in such sectors as agriculture, health care, information technology, construction, building design, mining, printing, and tourism.

There is an increased focus on the fastest growing, highly diversified facet of the economy, small to medium-sized enterprises (SMEs). A number of federal departments are providing SMEs with access to pollution prevention options, tools, and technologies needed to improve environmental performance.

Progress with the Canadian Public

The Canadian Pollution Prevention Information Clearinghouse, Canadian Pollution Prevention Success Stories, and AutoSmart continue to provide Canadians with access to high-quality and reliable information resources on pollution prevention. The EcoAction fund remains supportive of communities across Canada in addressing key environmental issues such as pesticide reduction, sustainable transportation, and home energy use.

As in past years, Canadian youth engaged in environmental discussions with decision-makers and pollution prevention practitioners at various roundtables and international forums and continued to provide valuable contributions to our knowledge and understanding of pollution prevention issues.



Progress in Pollution Prevention 2001–2002 showcases the federal government's achievements in incorporating pollution prevention into its own activities and those of its partners.

Progress with the International Community

The North American Pollution Prevention Partnership will look for additional ways to align environmental policies, projects, and programs to advance pollution prevention and achieve better environmental results. The launch of the Pollution Prevention World Information Network opens the doors to collaborative information exchange on a global scale.

There were major successes in the negotiation of international agreements. Canada was the first country in the world to sign and ratify the Stockholm Convention on Persistent Organic Pollutants.

Efforts have been made to share Canadian pollution prevention approaches and practices with other countries around the world. China translated into Mandarin and distributed throughout the country several key Canadian documents on pollution prevention and pollution prevention planning.

Trends and Future Opportunities

Pollution prevention will continue to be at the forefront in helping to meet the objectives of the federal government's priorities on clean air and water. The federal Pollution Prevention Strategy resides as the foundation for promoting the use of processes, practices, materials, products, substances, and energy that

avoid or minimize the creation of pollutants and waste.

Progress in Pollution Prevention 2001–2002 demonstrates the collective commitment on the part of federal departments to implement pollution prevention techniques and processes within their own facilities. It also shows that pollution prevention techniques and processes are evolving to address local, national, and global challenges.

The pollution prevention successes and lessons learned in 2001–2002 leave the Government of Canada in a stronger position to identify future opportunities to promote pollution prevention as the preferred method for protecting the environment and improving economic competitiveness.

We want to hear from you!

A reader survey can be found in the middle of this report.

The Pollution Prevention Framework

The legislation and policies that form the federal government's commitment to protect human health and the environment establish a strong pollution prevention framework.

Pollution Prevention and Its Linkages with Other Environmental Concepts

The federal government defines pollution prevention as "the use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste, and reduce overall risk to human health or the environment." The goal of pollution prevention is to eliminate the causes of pollution rather than be required to manage the waste generated. Pollution prevention involves continuous improvement through design, technical, operational, and behavioural changes. It also encourages transformations that frequently lead to lower production costs, increased efficiencies, and more effective protection of the environment.

Pollution prevention practices and techniques focus on such areas as substances of concern, efficient use and conservation of natural resources, reuse and recycling on-site, materials and feedstock substitution, operating efficiencies, training, procurement techniques, product design, process changes, product

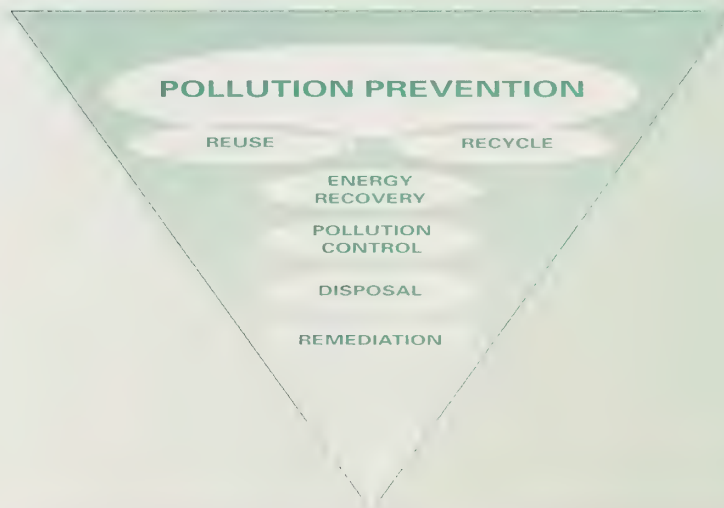
reformulation, equipment modifications, and clean production.

Pollution prevention:

- minimizes or avoids the creation of pollutants;
- prevents the transfer of pollutants from one medium to another;
- accelerates the reduction and/or elimination of pollutants;
- minimizes health risks;
- promotes the development of source reduction technologies;
- uses energy, materials, and resources more efficiently;
- reduces the need for costly enforcement;
- limits future liability with greater certainty;
- recognizes that waste is a cost that can be reduced;
- avoids costly cleanup in the future; and
- promotes a more competitive economy.

THE ENVIRONMENTAL PROTECTION HIERARCHY

Moving up the hierarchy is a step in the direction of pollution prevention.



Section 1: The Pollution Prevention Framework (continued)

THE CONNECTIONS AMONG SUSTAINABILITY, POLLUTION PREVENTION, AND ENVIRONMENTAL MANAGEMENT SYSTEMS

Pollution prevention (P2) is the preferred environmental approach for attaining sustainability. P2 stands at the top of the environmental protection hierarchy as the environmental management tool of first choice so that, whenever feasible, pollution or waste should be prevented or reduced at the source. Reducing material, energy, and water usage through improved efficiency is also considered P2. An environmental management system (EMS) is a systematic way of applying the P2 approach. An EMS can be designed to address only environmental compliance and not P2. However, many leading organizations are building P2 goals into their EMSs, so that continuous environmental improvement becomes an organizational priority. Some organizations are even trying to build sustainability into their EMSs. Sustainability paradigms such as Natural Step are used to evaluate impacts and action plans to determine if the organization is moving towards sustainability. Below is a table showing the inter-relationships among the concepts of sustainability, P2, and EMSs.

Federal Pollution Prevention Strategy

Pollution Prevention—A Federal Strategy for Action is the Government of Canada's policy framework for advancing pollution prevention as the priority approach to environmental protection. Approved by Cabinet in June 1995, the strategy elaborates on government policy and sets priorities for action based on five goals involving partnerships with federal departments and agencies, other orders of government, the private sector, individual Canadians, and the international community.

AT A GLANCE INTERRELATIONSHIPS

Attribute	Sustainability	Pollution Prevention	Environmental Management Systems
Definition	Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. ¹	Pollution prevention is the use of processes, practices, materials, products, substances, or energy that avoid or minimize the creation of pollutants and waste and reduce overall risk to human health or the environment. ²	An environmental management system is a framework developed by an organization to help improve its environmental performance by taking environmental considerations into account when making decisions and managing risks. ³
Core mission/goals	To integrate the three pillars—environmental, economic, and social considerations—into decision-making.	To eliminate the causes of pollution rather than manage the waste generated.	To provide an organization with the assurance that its environmental performance not only meets, but will continue to meet, its legal and policy requirements.
Scale	Provides an all-encompassing vision that examines an organization's operations and their relationship to the community.	Involves improvement through design, technical, operational, and behavioural changes.	Integrates an organization's structure, planning activities, responsibilities, practices, procedures, and resources for the purpose of developing, implementing, achieving, reviewing, and maintaining the environmental policy.
Area of focus	Integrity of natural environment, enhancing human development, equity, democracy, and civility, precaution, and seeking mutually supportive benefits.	Human processes and practices, material and energy use, and behavioural changes.	Information management from various sources, such as legal requirements, training records, operational procedures, and performance data.

¹ World Commission on Environment and Development (Gro Harlem Brundtland, chair), "From One Earth to One World: An Overview," in: *Our Common Future* (Oxford/New York: Oxford University Press, 1987), p. 8.

² *Canadian Environmental Protection Act, 1999*.

³ *Greening Government Operations*, Government of Canada.

Section 1: The Pollution Prevention Framework (continued)

The goals of the federal pollution prevention strategy include the following:

- *Within the federal government:* Institutionalize pollution prevention across all federal government activities;
- *With other governments:* Foster a national pollution prevention effort;
- *With the private sector:* Achieve a climate in which pollution prevention becomes a major consideration in industrial activities;
- *With the Canadian public:* Provide access to the information and tools necessary to implement pollution prevention practices;
- *With the international community:* Participate in international pollution prevention initiatives.

The strategy can be viewed at
<http://www.ec.gc.ca/pollution/strategy/>.

Federal Pollution Prevention Coordinating Committee

The federal Pollution Prevention Coordinating Committee was established in 1992 and is chaired by Environment Canada. It collectively promotes the implementation of *Pollution Prevention—A Federal Strategy for Action* by encouraging the practice of pollution prevention throughout the federal government and with the federal government's clients. The current committee membership, listed in Appendix I, includes representatives from 11 federal departments:

- Environment Canada
- Agriculture and Agri-Food Canada
- Canadian International Development Agency
- Fisheries and Oceans Canada
- Foreign Affairs and International Trade
- Health Canada
- Industry Canada
- National Defence
- Natural Resources Canada
- Public Works and Government Services Canada
- Transport Canada

Progress in Pollution Prevention, the annual report of the Pollution Prevention Coordinating Committee, was first published in 1996. This

annual report informs Canadians and government officials of national progress in pollution prevention, highlighting pollution prevention achievements and successes across the country. By relating progress to the five target sectors of the federal pollution prevention strategy and action plan, this report provides a framework for monitoring performance, profiling federal environmental successes, and assessing progress made towards the goals of the federal strategy.

Including the members of the Pollution Prevention Coordinating Committee, 20 federal departments and agencies contributed to this seventh annual report (see Appendix II), emphasizing the continued integration of pollution prevention across the federal government and demonstrating federal interdepartmental collaboration.

The National Commitment to Pollution Prevention

Within Canada, federal, provincial, territorial, municipal, and Aboriginal governments share jurisdiction for the environment. The Canadian Council of Ministers of the Environment (CCME) is Canada's premier forum for intergovernmental discussion and action on environmental issues. The CCME comprises environment ministers from the federal, provincial, and territorial governments with a mandate to improve environmental protection and promote sustainable development in Canada.

In 1993, the CCME contributed to the evolution of pollution prevention in Canada by releasing the statement entitled "National Commitment to Pollution Prevention." In May 1996, the CCME again addressed the issue by releasing "A Strategy to Fulfill the CCME Commitment to Pollution Prevention." This strategy sets out a shared vision, mission, and goal statement, as well as guiding principles for the implementation of pollution prevention by all provinces, territories, and the federal government. As part of the strategy, the CCME jurisdictions adopted a common definition of pollution prevention: "The use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and wastes, at the source." As stated in the CCME strategy, pollution prevention is a shared responsibility among governments,

Section 1: The Pollution Prevention Framework (continued)

individuals, and industrial, commercial, institutional, and community sectors.

To show its support for pollution prevention, the CCME presents pollution prevention awards annually and maintains a Pollution Prevention Network. The Network serves as a forum for information exchange among its members on an ad hoc basis and provides technical support to the CCME Pollution Prevention Awards Program.

The Government of Canada, with stakeholders in the private sector, environmental non-government organizations, communities, labour, and academia, is putting pollution prevention into practice through a mix of regulatory, non-regulatory, and economic instruments. This includes modernizing legislation and regulations, managing national programs, developing guidelines and codes of practice for industrial operations, establishing Canada-wide standards for specific substances, supporting voluntary initiatives, ensuring accessibility of tools and information, and implementing international agreements.

KEY POLLUTION PREVENTION POLICIES AND REGULATIONS

<i>Canadian Environmental Protection Act, 1999</i>	2000
Sustainable Development in Government Operations, A Coordinated Approach	2000
CCME Policy for the Management of Toxic Substances	1998
A Strategy to Fulfill the CCME Commitment to Pollution Prevention	1996
Pollution Prevention—A Federal Strategy for Action	1995
Greening of Government Operations Policy	1995
<i>The Auditor General Act</i> pertaining to sustainable development strategies	1995
	Amended
Toxic Substances Management Policy	1995
CCME National Commitment to Pollution Prevention	1993

Progress within the Federal Government

Federal pollution prevention strategy goal: Institutionalize pollution prevention across all federal government activities.

FEDERAL CLIMATE CHANGE COMMITMENT

Federal House in Order is an initiative led by Environment Canada and Natural Resources

Canada to encourage the reduction of greenhouse gas (GHG) emissions within federal operations. In Spring 2001, the Federal House in Order target of reducing GHG emissions by 31% from 1990 levels by 2010 was agreed to by the 11 federal departments that account for 95% of emissions. The federal government has committed to reporting annually on its GHG reduction achievements to the

Voluntary Challenge and Registry, and it received Gold Level reporting status in its 2001 update report entitled *Emissions Reductions from Federal Operations*. Specific actions taken under Federal House in Order to reduce GHG

emissions include the announcement of an agreement to procure green electricity at Government of Canada facilities in Saskatchewan, the launch of an ethanol fuels strategy in the federal fleet, expansion of the Federal Buildings Initiative, and the launch of an initiative to reduce emissions associated with employee commuting and business travel. To find out more, visit the Government of Canada's Climate Change website at <http://climatechange.gc.ca/english/index.shtml> and the Federal House in Order website at <http://www.fhio.gc.ca>.

National Programs

Legislation and Regulations

The *Canadian Environmental Protection Act, 1999* (CEPA 1999) recognizes the importance of pollution prevention (P2) planning. Part 4 provisions allow the federal government to require the preparation and implementation of P2 plans for specific toxic substances.

Environment Canada has initiated the process of requiring plans in respect of specific substances on the List of Toxic Substances. Stakeholder consultations are ongoing for dichloromethane, acrylonitrile, and the municipal wastewater sector. P2 planning is a systematic, comprehensive method of identifying options to minimize or avoid the creation of pollutants or waste. It is best applied to an entire process or facility. The more comprehensive the planning process, the more likely that it will focus on the root causes of problems, identify the most cost-effective P2 opportunities, and avoid inappropriate trade-offs (such as substituting one toxic substance for another). Plans should be tailored to the needs of the organization, forming an integral part of its existing business plan.

In addition to preventing pollution from ongoing or chronic situations (Part 4), CEPA 1999 also attempts to prevent pollution from spills or other sudden releases (Part 8). Part 8 provides authorities to require environmental emergency (E2) plans for substances once they have been declared toxic by the Ministers of Environment and Health (s. 199). In 2001–2002, 24 substances currently on the List of Toxic Substances (Schedule 1 of CEPA 1999) or substances that have been assessed as toxic and recommended for addition to the list were evaluated for possible E2 plan requirements using an E2 Planning Risk Evaluation Framework. An E2 plan outlines a facility's preparations and procedures to reduce the likelihood and consequences of environmental emergencies involving toxic substances. Good E2 planning involves emergency prevention, preparedness, response, and recovery measures. During the latter half of 2001–2002, Environment Canada's Environmental Emergencies Branch also began work on the development of a regulation under s. 200 of

In Spring 2001, the Federal House in Order target of reducing greenhouse gas emissions by 31% from 1990 levels by 2010, was agreed to by the 11 federal departments that account for 95% of emissions.



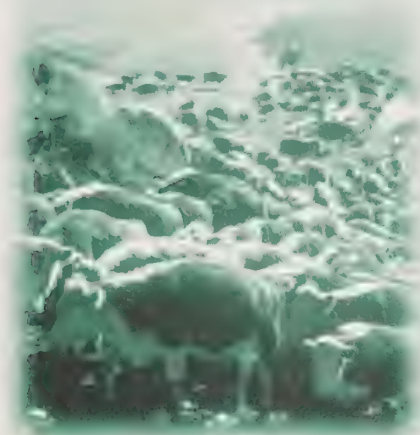
Part 8 that would require the development and implementation of E2 plans for those facilities that use or store any of 174 listed substances at or above specified thresholds. Substances have been included for their toxic or other hazardous properties. The E2 guidelines can be found at <http://www.ec.gc.ca/CEPARRegistry/plans/E2.cfm>.

Toxic Substances

To prevent the spread of foot and mouth disease to Canadian livestock, the Canadian Food Inspection Agency ensures that all passengers entering Canada from countries with the disease disinfect their shoes by walking across a disinfectant-soaked carpet. Staff at Mirabel, Dorval, and Quebec airports continue to use procedures that minimize the environmental impact of the used disinfectant. The traditional disinfectant, which was found to be a carcinogenic phenol compound, was replaced with a product that decomposes into sulfur and potassium, posing little or no threat to sewage systems or the environment. The procedure was carried out in all Canadian international airports during 2001–2002.

Section 2A: Progress within the Federal Government (continued)

The Canadian Food Inspection Agency has replaced the traditional disinfectant used to prevent transmission of foot and mouth disease from overseas to Canadian livestock, with a product posing little or no threat to the environment



Environment Canada supports research that will help prevent mercury releases from products into the environment. Efforts are under way to develop a permanent mercury disposal protocol with North American

partners that will prevent mercury from being recycled and incorporated into other products. The department also supports the monitoring efforts of the Canadian Mercury Deposition Network and is active on a task force aimed at developing the North American Regional Action Plan on Mercury.

Under the *Canadian Environmental Protection Act, 1999*, the Ministers of Environment and Health have authority to declare substances "toxic" if they pose a significant risk to the health of Canadians or to the environment. The Toxic Substances Management Policy outlines the federal government's risk management process for toxic substances based on two key objectives: virtual elimination from the environment for toxic substances that are persistent, bioaccumulative, and primarily the result of human activity (Track 1); and life cycle management of other toxic

substances and substances of concern to prevent or minimize their release into the environment (Track 2). Environment Canada applies a pollution prevention approach and the precautionary principle to the management of both Track 1 and Track 2 substances. It is implementing action plans to virtually eliminate the most dangerous toxic substances, and domestic action has already been taken to limit or ban the production, use, importation, or release of these substances.

Forty-four substances on the first Priority Substances List (PSL1) were assessed under the Priority Substances Assessment Program by 1994. Of these, 25 were found to be toxic. Management options, developed in consultation with stakeholders through the Strategic Options Process, have been adopted for a number of toxic substances (see table below), and work is proceeding on those remaining.

TARGETED SECTORS

Dry cleaning (tetrachloroethylene)

Solvent degreasing (tetrachloroethylene; trichloroethylene)

Coal-fired power generation (inorganic arsenic compounds; inorganic cadmium compounds; oxidic, sulphidic, and soluble inorganic nickel compounds; sector also contributes to the release of dioxins and furans, particulate matter, benzene, and smog)

Steel manufacturing (benzene; inorganic arsenic compounds; inorganic cadmium compounds; inorganic fluorides; oxidic, sulphidic, and soluble inorganic nickel compounds; polycyclic aromatic hydrocarbons; dioxins and furans)

Base metal smelting (inorganic arsenic compounds; inorganic cadmium compounds; oxidic, sulphidic, and soluble inorganic nickel compounds)

Metal finishing sector (hexavalent chromium compounds)

Wood preservation (hexavalent chromium compounds; hexachlorobenzene; creosote-contaminated sites; dioxins and furans; inorganic arsenic compounds; polycyclic aromatic hydrocarbons; creosote-impregnated wastes)

TARGETED SUBSTANCES

Benzidine

3,3'-Dichlorobenzidine

Refractory ceramic fibres

Dichloromethane

Hexachlorobenzene

Bis(2-ethylhexyl) phthalate

1,2-Dichloroethane

Short-chain chlorinated paraffins

STATUS IN 2001-2002

- Proposed regulations published in the *Canada Gazette*

- Draft regulations under development

- Canada-wide Standard substances in the negotiation process

- Codes of Practice in place

- Canada-wide Standard for dioxins and furans in negotiation process

- Codes of Practice and Environmental Management Plans under development

- Draft regulations under development

- Code of Practice being implemented

STATUS IN 2001-2002

- Proposed regulations published in the *Canada Gazette*

- Agreement with one plant

- Environmental Performance Agreement in place

- CEPA 1999 section 56 pollution prevention planning notice under development

- Proposed regulations published in the *Canada Gazette*

- Additional studies are recommended

- Environmental Performance Agreement in place

- Risk assessment being reevaluated

Section 2A: Progress within the Federal Government (continued)

In November 2001 Environment Canada announced new requirements for the 2002 NPRI reporting year, including capturing more pollutant release data from municipal wastewater facilities.

The *Canadian Environmental Assessment Act* (CEAA) promotes pollution prevention practices by ensuring that environmental considerations are incorporated early in the decision-making process. The Atlantic Canada Opportunities Agency and the Canadian Food Inspection Agency have incorporated environmental assessment—a key to pollution prevention—into their policy frameworks and have adopted guidelines based on CEAA. Similarly, the Department of Foreign Affairs and International Trade released a framework for conducting environmental assessments of trade negotiations to assist decision-makers in identifying and including potential pollution prevention opportunities as a consideration throughout the trade negotiation process. For example, the Commission for Environmental Cooperation (CEC) was established under the North American Free Trade Agreement. The Pollutants and Health program of the CEC seeks to prevent or correct adverse effects of pollution on human and ecosystem health in North America by establishing cooperative initiatives and providing guidance on pollution prevention. The department also performs environmental site assessments of properties abroad to identify and implement best management practices.



A complete list of the 25 substances declared toxic under CEPA (commonly known as "CEPA-toxic") as a result of the PSL1 assessment, as well as the status of the development of control instruments for each, can be found at <http://www.ec.gc.ca/sop>.

A second Priority Substances List (PSL2) was published in 1995 with 25 additional substances. During 2000–2001, departments gathered information related to the PSL2 substances and initiated development of risk management strategies. Actions on PSL2 substances will be addressed in a multi-pollutant approach where possible, targeting groups of substances or taking a sector-specific approach. Specific risk management strategies will be released for consultation that will present the approach undertaken, the proposed objectives, and the proposed risk management tools. Consultations will also be held during the development of the subsequent risk management tools.

The New Substances Program, under Part 5 of CEPA, is an integral part of the federal government's approach to pollution prevention, as it ensures that no new substance is imported or manufactured in Canada prior to an assessment on whether it is toxic to the environment or human health. The risks of substances determined to be, or suspected of being, toxic or capable of becoming toxic may be managed, as necessary, through the imposition of conditions or the prohibition of their import or manufacture.


The CEPA New Substances Notifications Regulations for chemicals and polymers have been in place since 1994, while the biotechnology portion of the regulations came into force in 1997. Over 850 new substance notifications were received by Environment Canada and Health Canada in 2001–2002.


Clean Air/Water


The National Pollutant Release Inventory (NPRI) tracks and provides Canadians with access to information on releases and transfers of key pollutants and related pollution prevention activities in their communities by industrial and commercial facilities. The NPRI is the only national, legislated, publicly accessible inventory of this type in Canada. Approximately 33% of all pollution prevention activity reported in 1999 was in the form of "good operating practices or training." "Spill and leak prevention" was the second most popular approach, at 18%. In November 2001, Environment Canada announced new requirements for the 2002 NPRI reporting year, including adding air pollutants that contribute to smog and other forms of poor air quality, capturing more pollutant release data from municipal wastewater facilities, and lowering the reporting thresholds for heavy metals. For more information, visit <http://www.ec.gc.ca/pdb/npri>.

Section 2A: Progress within the Federal Government (continued)

Departmental Policy Integration

Now in its fourth year, the Environment Canada Pollution Prevention Team, composed of regional and headquarters staff, coordinates the adoption of pilot regional initiatives with other regional and national campaigns. The team continues to administer or deliver approximately 25 pollution prevention projects per year. Examples include Pollution Prevention in the Roadbuilding and Heavy Construction Industry, Greening Government Offices in Vancouver, and Bilge Water—Getting the Toxics Out. 

The Canadian Economic Development Agency signed a cooperation agreement with Environment Canada—Quebec Region to provide the technical and scientific support for project implementation to develop technologies, products, and services relating to the environment, sustainable development, and pollution prevention. In 2001–2002, the Agency and its partners approved 50 projects representing an estimated investment of \$38 million. 

In January 2002, Western Economic Diversification Canada approved its departmental Environmental Policy. The policy commits the department to promoting pollution prevention practices and techniques, focusing on the efficient use and conservation of natural resources; operating efficiencies and training; procurement techniques; and process changes and clean production. 

Government Operations

The Government of Canada is committed to making government greener by promoting the adoption of pollution prevention and environmentally responsible approaches and practices in each of its departments and agencies. This portion of the report outlines pollution prevention and other environmental initiatives undertaken by government departments in 2001–2002.

Sustainable Development and Environmental Management Systems

The 1995 amendments to the Auditor General Act require a number of federal departments and agencies to table sustainable development strategies in Parliament, outlining departmental goals for integrating sustainable development into their policies, programs, and operations, and to update these strategies every three years. The second round of sustainable development strategies was tabled in February 2001. In renewing their sustainable development strategies, departments took deliberate steps to strengthen management systems to ensure implementation. They also emphasized collaboration, with common goals shared across portfolios. Eight priority areas were identified for coordinated action and planning, including sustainable development in the North, sustainability in Canadian communities, promoting eco-efficient practices in the private sector, and sustainable development in government operations.

Looking forward, departments have begun a process to prepare a federal sustainable development strategy. This will be an overarching, longer-term policy framework that will promote a shared vision and further facilitate the coordination of efforts on sustainable development across the federal government. A federal sustainable development strategy will provide guidance to federal departments and agencies when preparing their next round of sustainable development strategies, due by the end of 2003.

INTERDEPARTMENTAL ARRANGEMENTS ON POLLUTION PREVENTION AND ENVIRONMENTAL MANAGEMENT

Federal departments and agencies often share interests, mandates, or responsibilities for government operations and sustainable development. Participation in interdepartmental groups is essential for developing common tools, coordinating activities, and sharing information.

Federal interdepartmental mechanisms in place to promote coordination on environmental management activities include:

- Deputy Ministers' Sustainable Development Coordinating Committee;
- Assistant Deputy Ministers' Sustainable Development Task Force;
- Interdepartmental Network on Sustainable Development Strategies;
- Federal Committee on Environmental Management Systems;
- Interdepartmental Advisory Group on Water Conservation at Federal Facilities;
- Sustainable Development in Government Operations Directors' Coordinating Committee;
- Pollution Prevention Coordinating Committee; and
- Regional federal councils.

Section 2A: Progress within the Federal Government (continued)

THE PRECAUTIONARY PRINCIPLE

The Rio Declaration Precautionary Principle states that "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." Adoption of the Rio definition of the precautionary principle into the *Canadian Environmental Protection Act, 1999* has triggered efforts to prepare a framework for its use in Canada. Federal departments and agencies have discussed what the principle means in the Canadian context.

An environmental management system (EMS) provides a systematic framework to help an organization manage its environmental obligations and document, evaluate, and communicate its environmental performance. Co-chaired by Natural Resources Canada and Environment Canada, the Federal Committee on Environmental Management Systems continues to promote the effective implementation of departmental EMSs. Some examples of effective implementation of EMSs appear below.

National Defence's 25 Canadian Forces Supply Depot (25 CFSD) in Montreal maintained its ISO 14001 EMS certification. The EMS at 25 CFSD has resulted in the continual improvement of procedures and controls to reduce the risk of spills and leaks, along with the examination of energy consumption, packaging, and wastewater management opportunities. During 2001–2002, 25 CFSD reused 3561 incoming pallets for outgoing shipments, saving over \$45,000. Similarly, savings in the reuse of crates, fast packs, and other packing totalled over \$37,000.

The Department of Foreign Affairs and International Trade implemented an EMS to review and improve its environmental performance in Canada and at Canadian missions¹ abroad. The Environmental Management Policy includes a commitment to incorporate pollution prevention principles and adopt best environmental management practices. Within the mission property management plans, the department now encourages missions to report on the environmental targets and performance measures for 11 priority areas. The mission property management team won the Deputy Minister's Award for Environmental Achievement and Sustainable Development and was cited for its efforts.

In 2001–2002, the Canadian Food Inspection Agency (CFIA) initiated and implemented EMSs across its regional facilities. Two workshops were held in Ontario during 2001–2002, and training was provided in pollution prevention and other environmental topics. Training was provided to all available staff in all Quebec area sites (28) on pollution prevention, due diligence, and other EMS topics. CFIA developed a National EMS Manual that will guide implementation of area/site-specific EMSs. Area green teams implemented EMSs through greening initiatives such as depots for hazardous waste collection and purchasing environmentally friendly cleaners. CFIA will continue to promote employee awareness of its commitment to environmentally responsible practices through events such as Clean Air Day and Environment Week.

Transport Canada developed an Environmental Monitoring Program as part of its EMS to ensure that all applicable regulations, policies, and practices are met; and pollution prevention is integral to its operations. Similarly, Human Resources Development Canada uses Environmental Action Plan Online as a tool for setting and reporting on its sustainable development strategy objectives and targets. As part of its efforts to increase staff awareness, training material is designed to ensure an understanding of the EMS and sustainable development strategy, increase integration of sustainable development into decisions, and instil a sense of environmental responsibility. Future plans involve the development of a new intranet site called Sustainable Development Online to provide an online environmental training program, knowledge bank, sustainable development links, and environmental laws database.

An integrated occupational health and safety and environmental management system framework was developed by Fisheries and Oceans Canada in 2001–2002. Full operation of the system is anticipated at the Institute of Ocean Sciences by the end of 2002–2003. Pollution prevention is an integral part of the system and will be adopted through training and procedures implementation.

1 The term Canadian mission refers to the offices of the department normally referred to by the city where they are located abroad. The department operates in over 120 cities abroad.

Section 2A: Progress within the Federal Government (continued)

SUSTAINABLE GOVERNMENT OPERATIONS

Sustainable Development in Government Operations (SDGO) is a government-wide initiative set up in early 2000 to build capacity to meet the government's commitment for environmental excellence in its own operations. The SDGO initiative coordinates the efforts to green government operations and report collectively on progress.

The initiative involves the 25 departments and agencies that are required by legislation to prepare sustainable development strategies (SDSs) and three of the departments and agencies that voluntarily prepare SDSs. The SDGO initiative is co-led by three departments: Environment Canada, Natural Resources Canada (NRCan), and Public Works and Government Services Canada (PWGSC).

Environment Canada has launched and will continue to administer a web portal facilitating access to information, best practices, and tools related to greening government generally and to the SDGO initiative specifically. PWGSC is in charge of encouraging interdepartmental participation and building regional capacity for coordinated greening of federal operations. NRCan is responsible for producing the first government-wide report on greening operations. Departments are encouraged to follow best practice examples as outlined in the priority areas below. For more information and further best practice examples, visit <http://www.greeninggovernment.gc.ca>. Departments are also encouraged to have an organizational framework (i.e., environmental management system) that addresses these priorities and are encouraged to report progress on the greening of their operations.

Waste

- Identify waste reduction opportunities, taking advantage of existing auditing tools and procedures.
- Develop and implement a waste reduction action plan, including an awareness program for employees.
- Separate waste streams at source to facilitate reuse, recycling, and proper disposal.

Examples of P2 Practices and Techniques

- Reducing inputs and waste
- On-site reuse and recycling
- Operating efficiencies and training

Water Conservation and Wastewater Management

- Identify water savings opportunities, taking advantage of existing audit tools and procedures.
- Develop and implement a water conservation plan.
- Specify water-saving equipment and devices for future purchases, such as water-efficient fixtures, including toilets, faucets, showerheads, and appliances.

Examples of P2 Practices and Techniques

- Ensure hazardous materials are not disposed of improperly
- Reduce the water volume to water treatment facilities

Energy Efficiency / Building

- Develop and implement energy management plans, including preventative maintenance (guidelines are available under the Natural Resources Canada Federal Building Initiative).
- Implement all economically attractive energy retrofits.

Examples of P2 Practices and Techniques

- Procurement of renewable energy or green power
- Energy-saving equipment and devices specified for future purchases, e.g., energy-efficient lighting and water heating

Vehicle Fleet

- Manage fleet vehicles in accordance with economic and environmental objectives of the Treasury Board Motor Vehicle Policy, being developed in partnership with Natural Resources Canada and Environment Canada.
- Wherever possible, use low-sulphur diesel and ethanol-gasoline blends, meeting environmental specifications.
- Purchase original equipment manufactured alternative fuel vehicles or retrofit vehicles where life cycle costs are comparable to gasoline- or diesel-fuelled vehicles.

Examples of P2 Practices and Techniques

- Purchase small, more energy efficient vehicles (i.e., hybrid vehicles)
- Number of vehicles for departmental use reduced

Procurement

- Evaluate potential purchases as outlined in Treasury Board's Material Management Environmental Guidelines.
- Consistent with Canada's international trade obligations, purchase products and services that meet environmental specifications wherever these are available and consider life cycle costs. In some cases, this could involve a small price differential.
- Provide green procurement training to officers with purchasing authority to improve decision-making, such as Implementing Environmental Purchasing Policies, available from Environment Canada.

Examples of P2 Practices and Techniques

Purchasing products with environmental labelling:

- EnergyStar (<http://oee.nrcan.gc.ca/energystar/english/>)
- EcoLogo (<http://www.environmentalchoice.ca>)

Section 2A: Progress within the Federal Government (continued)

SUSTAINABLE GOVERNMENT OPERATIONS (continued)

Human Resources Management

- Consistent with Treasury Board's personnel policy, adopt human resource management practices that foster innovative working arrangements, such as job sharing and working from home, which support environmental objectives.
- Infuse environmental awareness into all training programs, particularly orientation training.

Examples of P2 Practices and Techniques

Awareness Programs:

- Idle-free Zone (<http://oee.nrcan.gc.ca/idling/>)
- Zero Waste Program

Training available to public service employees:

- Energy efficiency workshops (delivered by Natural Resources Canada)
- Pollution Prevention Practitioners Course and Certificate (delivered by the Canadian Centre for Pollution Prevention)

Land Use

- The identification, classification, and assessment of sites of concern on departmental lands should be undertaken using the Canadian Council of Ministers of the Environment (CCME) National Classification System or a similar tool.
- The management of the risk to human health and the environment should include risk assessment and techniques for containment, mitigation, and remediation.
- Site remediation objectives should be based on the existing CCME Environmental Quality Criteria as appropriate or the CCME Risk Assessment Framework for Ecological and Human Health Effects, for risk-based remediation plans.

Examples of P2 Practices and Techniques

- Planting hardy and native plants that need less pesticides and water
- Phasing out the use of hazardous substances

Waste Reduction

All federal departments have set targets to reduce waste sent to landfill. Waste audits at Human Resources Development Canada indicate a 45% reduction in landfill waste compared with 1988 levels. At the Department of Justice's Headquarters, the waste diversion rate has been maintained at 80% for 2001–2002.

National Defence has reduced the amount of solid waste sent to landfill by 4% from 2000–2001 levels. Some of this reduction was through increased waste diversion. For instance, Canadian Forces Base Gagetown's in-vessel (enclosed) composter diverted 213 tonnes of food. The compost offsets the need to purchase fertilizer and pesticides.

In 2001–2002, many federal departments were faced with construction, renovation, or demolition projects. Several of Western Economic Diversification Canada's offices underwent renovations, and efforts were made to reuse demountable walls and windows as well as ceiling systems in the new construction. Through the joint efforts of the First Nations Band Councils and Health Canada staff in Quebec, "green" construction materials, such as floor glue and latex paint, were purchased.

Statistics Canada has dramatically reduced paper use. Publications available electronically have increased from slightly more than 1% in 1998 to 62% in 2001. In addition, several programs have converted to using strictly electronic dissemination for such things as job posters, newsletters, and the internal staff telephone directory. Public Works and Government Services Canada saves over 2 million tonnes of paper annually by making Government of Canada payments and receipts electronic. Similarly, Health Canada's internal InfoRoute newsletter is now distributed 90% electronically and 10% on recycled paper.

Energy Efficiency/Water Conservation

The Federal Buildings Initiative (FBI), led by Natural Resources Canada, is a voluntary program that helps federal departments and agencies improve the energy and water efficiency of their facilities. To date, FBI-type contracts with private sector energy service companies have financed retrofits in more than 7000 federal buildings, resulting in annual energy savings of about \$27 million and significant reductions in greenhouse gas emissions (15–20%).

Section 2A: Progress within the Federal Government (continued)

As the primary custodian of Crown-owned property, Public Works and Government Services Canada has a significant role to play in greenhouse gas reduction and resource conservation. Energy and water conservation initiatives have already been implemented in more than 60% of its Crown-owned inventory by floor area, and more work is targeted. [REDACTED]

Health Canada's First Nations and Inuit Health Branch is working to increase water conservation and efficient wastewater management. Hospital water audits were conducted for Sioux Lookout, Percy Moore, Moose Factory, and Norway House. Information from these audits will be used to develop water conservation strategies and "best practices" for wastewater management. [REDACTED]

Fisheries and Oceans Canada installed solar power systems at remote light stations to replace electricity supplied by on-site diesel generators and submarine power cables. Since the inception of the light station solarization program, the department has converted 23 remote light stations. The program has eliminated the potential for petroleum releases from fuel transfer or tank failure at these facilities, while ensuring a reliable energy supply for these navigational aids. [REDACTED]

As part of its Manitoba office renovations, Western Economic Diversification Canada installed a motion-sensitive lighting system. The department's Saskatchewan and British Columbia offices use only photocopiers and printers that operate with "power save" features. The department's Alberta office individually controls each section of the floor for low power lighting after hours. [REDACTED]

The Atlantic Canada Opportunities Agency has partnered with Natural Resources Canada on an energy efficiency and renewable energy initiative for Atlantic Canada. The goal is to increase Atlantic Canada's use of Natural Resource Canada's Industrial Energy Efficiency Audit Program and Renewable Energy Research and Development Program. [REDACTED]

Canada Post has implemented water conservation measures at its headquarters. Cooling towers were modified and can now be selectively filtered, with back-washing dramatically reduced, thereby saving considerable water. Aerators were installed on all washroom and kitchen taps, resulting in estimated water savings of 100 000 litres per month. Also, the landscape irrigation system is now operated as needed, rather than automatically. [REDACTED]

Operations/Facility Management

As an owner, operator, and landlord of airports, Transport Canada has a responsibility to ensure the proper management of glycol de-icing fluid. Samples of airport surface runoff collected during 2001–2002 were analyzed for glycol concentrations. The results showed a continuing improvement in the responsible management of glycol effluents from de-icing operations. Improvement is attributed in part to the detailed glycol management plans required from airline and/or ground handling agents at Transport Canada-operated airports and airport authorities before each de-icing season. [REDACTED]

Environment Canada—Ontario Region completed three Federal Facility Pollution Prevention Demonstration Site Projects in partnership with Correctional Services Canada's Warkworth Institution in Campbellford, Ontario, the Canada Post Corporation Ottawa Mail Processing Plant and Vehicle Services Depot, and the House of Commons Printing Services. Each project involved implementation of pilot projects to demonstrate to management and staff how implementing pollution prevention practices could eliminate hazardous waste generation and improve energy efficiency and workplace health and safety. All three of these



The Canadian Forces Base Comox's fuel reclaimer project has reduced hazardous waste generated at the base by 23%.

projects resulted in the successful implementation of numerous pollution prevention initiatives. [REDACTED]

The Department of Foreign Affairs and International Trade has been involved in the design of a new Canadian Embassy in Berlin, Germany. Incorporated into the design were products that require less energy to extract, manufacture, ship, assemble, and install; and products that minimize the use of volatile organic compounds, chlorofluorocarbons, and polychlorinated biphenols. [REDACTED]

Canadian Forces Base (CFB) Comox's fuel reclaimer project has reduced hazardous waste generated at the base by 23% by reusing waste aviation fuel. In 2001–2002, CFB Comox's project led to the receipt of three awards, two within the department and one from the Treasury Board of Canada. [REDACTED]

Public Works and Government Services Canada developed a protocol to promote the use of alternatives to hazardous materials and processes that generate hazardous waste. The protocol document assists employees involved with hazardous materials to identify cost-effective opportunities to implement alternative

Section 2A: Progress within the Federal Government (continued)

products and processes. The document also features an evaluation procedure for targeting hazardous materials for elimination or reduction. Included is a method for identifying materials of concern, a cost evaluation process, and key life cycle management issues that need to be addressed during an evaluation. [REDACTED]

EnviroClub™ for federal facilities is a pilot project coordinated and delivered by Environment Canada—Quebec Region. The project, launched in May 2001, will end in September 2003. Its main objective is to help federal facilities involved in environmental or operations management carry out pollution prevention (P2) projects within their organization. The project has three components: P2-related training and awareness for participants; tours of targeted facilities to identify P2 opportunities; and implementation and follow-up of each partner's P2 projects. Federal partners include National Defence, Canada Economic Development, Parks Canada, Montreal Port Authority, Transport Canada, Public Works and Government Services Canada, Correctional Services Canada, and Indian and Northern Affairs Canada. [REDACTED]

In 2001–2002, Fisheries and Oceans Canada undertook initiatives to avoid potential fuel spills. It initiated an inspection and upgrading program for its registered and non-registered fuel storage systems. As a result, 52 non-registered fuel systems were inspected and prioritized for future upgrading or removal. [REDACTED]

National Defence reduced hazardous material usage, waste generation, and spills by supporting the implementation of best management practices (e.g., spill prevention) within its Land Management System workshops. A total of 23 best management practices initiatives were implemented across Canada in 2001–2002 through over 35 workshops. National Defence's Director Quality Assurance Marine "refit" staff monitored environmental protection and mitigation measures that shipyard contractors used, such as the use of spray controls to minimize the release of paint and paint solvents. Long-term targets for the contractors include reduction of spills, reduction in waste sent for disposal, and use of proper hazardous materials handling procedures. [REDACTED]

In 2001–2002, Canadian Forces Base Gagetown converted its central heating plant from oil to natural gas. The "Heliport" and new dining facility have also been converted. Long-term targets include conversion of all locations on base to natural gas, where feasible. Conversion will reduce carbon dioxide emissions and significantly reduce emissions of sulphur dioxide, a major acid rain precursor. [REDACTED]

Land Use

Health Canada's Scarborough, Ontario, laboratory has negotiated a new grounds-keeping contract incorporating requirements to reduce grass cutting frequency and to discourage grass cutting on smog alert days. The contract also references the use of only environmentally friendly "weed killing" and cleaning products. Other environmental initiatives include tree planting on the property to absorb carbon dioxide emissions. [REDACTED]

In October 2001, a new working group was formed to develop a standard approach for pest management decisions in federal government operations. The mandate of the working group, co-chaired by Public Works and Government Services Canada and National Defence, was to ensure that current directives, policies, and initiatives of the federal government are consistent with integrated pest management principals and practices, beginning with lawn care. Integrated pest management is a decision-making process that uses all necessary techniques to suppress pests effectively, economically, and in an environmentally sound manner to sustain healthy landscapes and structures. [REDACTED]

During 2001–2002, National Defence issued an Environmental Directive to eliminate pesticide use for cosmetic lawn care on all properties by April 1, 2003. The directive prohibits pesticide use for cosmetic lawn care within 50 metres of schools, day care centres, parks, playgrounds, churches, or hospitals. During 2001–2002, approximately 50% of all bases eliminated the use of pesticides for cosmetic lawn care. [REDACTED]

Vehicle Fleet Management

The FleetWise program, managed by Natural Resources Canada, provides federal fleet managers with information and tools to improve the operational efficiency of their vehicle fleets, reduce emissions from federal operations, and promote the *Alternative Fuels Act* within the federal fleet. In 2001–2002, the

ALTERNATIVE FUELS ACT FOR FLEET ACQUISITION

The *Alternative Fuels Act* will accelerate the use in Canada of alternative transportation fuels (ATFs) in motor vehicles and reduce the emissions of carbon dioxide and other greenhouse gases. The Act targets the federal vehicle fleet, thus providing the government with a leadership role in the use of ATFs.

For instance, the Act requires departments and agencies to review each new vehicle acquisition in terms of its estimated annual fuel consumption and primary operational tasks and to purchase an ATF vehicle for a minimum of 75% of cases where it would be both cost-effective and operationally feasible.

Section 2A: Progress within the Federal Government (continued)

program reduced greenhouse gas emissions by 185 kilotonnes of carbon dioxide. E-85 is an alternative fuel composed of 15% gasoline and 85% ethanol. It is currently in use in an increasing number of federal fleet vehicles that are being purchased from the manufacturers with a built-in capability of burning this higher ethanol fuel mixture. In 2001–2002, Natural Resources Canada alone distributed 50 000 litres of ethanol fuel to federal government departments and private industry, resulting in a 30% reduction of greenhouse gas production from vehicle tailpipe emissions. Furthermore, there is now a commercial ethanol fuel site operating in Ottawa, the first of its kind in Canada.

Federal departments also purchased other types of alternative fuel vehicles during 2001–2002. Atlantic Canada Opportunities Agency and Health Canada bought gas/electric hybrid vehicles. Of Natural Resources Canada's and Transport Canada's new vehicles, approximately 40% use alternative fuel, and the departments are on track to meet their long-term goal of 50% use. The Communication Research Centre Canada, an agency of Industry Canada, has low-pollution vehicles as 12% of its fleet.

The Canadian Food Inspection Agency promoted Green Fleet Driving Practices to its staff. Practices include servicing vehicles regularly to optimize performance, reducing the weight that vehicles carry to improve fuel economy, maintaining correct tire pressure, and reducing engine idling time. They will be included in the Vehicle Use Policy and will also be incorporated in each vehicle's fleet log book. The Agency will continue to promote the introduction of smaller vehicles and/or engine sizes and ethanol-blended fuels and monitor fleet utilization to maximize use.

As a commitment to upgrade its tanks under the Storage Tank Management Program, Agriculture and Agri-Food Canada, in partnership with Natural Resources Canada, developed a new above-ground storage tank and supply/distribution system suitable for oxygen-enriched fuels such as E-85. In addition, Agriculture and Agri-Food Canada has continued to help reduce emissions by introducing 12 new alternative fuel vehicles.



Agriculture and Agri-Food Canada in partnership with Natural Resources Canada, have developed new above-ground storage tank and supply distribution systems suitable for oxygen-enriched fuels such as E-85.

A body maintenance and corrosion control program was initiated by National Defence's Director General Land Equipment Program Management to lengthen the life span (50–70%) of its combat support vehicle fleets. The new maintenance program will reduce the quantity of hazardous materials used and hazardous, solid, and liquid wastes generated (e.g., cleaners, degreasers, and paint) during the life of a vehicle. Approximately 3000 vehicles were sprayed in 2001–2002, and fleet body condition monitoring will continue.



E-85 is an alternative fuel composed of 15% gasoline and 85% ethanol which is capable of significantly reducing greenhouse gases from vehicle tailpipe emissions.

National Defence has partnered with Natural Resources Canada and the Forest Industry Research Association of Canada to review current methods of vehicle fleet lubrication and oil and filter changes based on usage patterns. An alternative method is being used to examine the oil's level of acidity. As a result, the new method provides a more accurate assessment of the oil's life expectancy. For example, one vehicle exceeded the recommended oil change interval threefold by operating for 24 000 kilometres before its oil and filter were removed for analysis. Early results are promising and suggest that this alternative method does extend the period of time between oil and filter changes. The department has also developed *On-Track Pro*, a software package for determining the operational and economic feasibility of procuring new vehicles or converting vehicles to operate on an alternative fuel.

The Canadian Food Inspection Agency participated in the Ontario Region Corporate Smog Action Plan initiated by Environment Canada, Health Canada, and Public Works and Government Services Canada. The plan encourages the adoption of practices to reduce smog precursor emissions from federal government operations. Many departments now use alternative fuel vehicles to address this issue.

Section 2A: Progress within the Federal Government (continued)

Procurement

Public Works and Government Services Canada (PWGSC) has developed a new intranet website—the Green Procurement Network—to help federal departments and agencies integrate green procurement into policies, programs, and purchasing processes. The site targets material managers, procurement officers, and other employees directly involved in the purchasing of goods and services. The e-purchasing site's catalogue has 1472 products that are considered green. PWGSC continues to incorporate environmentally responsible clauses, especially on energy, water, solid waste, and hazardous waste, into the National Master Specification. The department delivers a green procurement course that has been taken by 307 PWGSC purchasers and 21 employees of other departments to date. PWGSC is also the lead department for "Green Power" procurement on behalf of the federal government and has signed Memoranda of Understanding with suppliers from Atlantic Canada that have this capability. The department is currently negotiating formal "Green Power" purchase agreements with Nova Scotia Power, Newfoundland and Labrador Hydro, New Brunswick Power, and B.C. Hydro. Requests for Proposal are in the final stages of development for the Ontario and Alberta markets.

The Canadian Food Inspection Agency integrated green criteria into its laundry and uniform rental service contracts. In Alberta, it agreed to purchase 35% wind-powered electricity at its two major laboratories, thus reducing carbon dioxide emissions in 2001–2002 by 288 tonnes. The Agency provided green procurement training and has an online system highlighting products with "green" qualities that are selected for their recycled material content, fewer polluting by-products, and ease of reuse and recycling.

In 2001–2002, Human Resources Development Canada spent approximately the same amount on green purchases as the previous year, despite a 13% reduction in the procurement budget.

Health Canada's Information, Analysis and Connectivity Branch has been proactive in purchasing recycled paper. This past fiscal year, recycled paper increased from 39% to 98% of total paper purchased. Also, the branch increased its purchasing of recycled printer cartridges in 2001–2002, from 13% to 26% of total cartridges purchased. The regional offices of Western Economic Diversification Canada have taken similar procurement action.

In 2001–2002, National Defence's Area Support Unit Chilliwack procured a hot water parts washer for use in maintenance activities. Overall, the new parts washer reduced varsol purchase and disposal by approximately 450 litres.

The Department of Foreign Affairs and International Trade spent \$1.2 million in 2001–2002 on green products in support of its headquarters' operations.

Training and Awareness

Environment Canada's Federal Programs Division recently released the Federal Facilities Mercury Info-guide, a fact sheet that provides information on the health and environmental issues surrounding the use of mercury-containing products, as well as their use/location, alternatives, and disposal methods. Over 1000 copies of the guide have been distributed in Ontario. A website has also been created to share mercury-related information as well as mercury fish consumption advisories. For more information, visit <http://www.ec.gc.ca/mercury> and <http://www.on.ec.gc.ca/epb/fpd>.

Environment Canada—Atlantic Region hosted an Environmental Management Workshop for Federal Facilities in February 2002. Sections of the workshop focused on pollution prevention, including Part 4 of the *Canadian Environmental Protection Act, 1999*. Approximately 80 individuals from 15 federal departments/agencies in Atlantic Canada participated.

Section 2A: Progress within the Federal Government (continued)

In 2001–2002, several federal departments made significant strides in delivering Internet-based environmental training that incorporates aspects of pollution prevention. The Department of Foreign Affairs and International Trade delivered the Introduction to Environmental Assessment Virtual Campus course. Health Canada implemented an Environmental and Sustainable Development online training tool. Western Economic Diversification Canada developed a Sustainable Development Online Learning Tool in partnership with the Western Canada Business Service Network. [REDACTED]

The Communication Research Centre Canada, an agency of Industry Canada, has an active Employee Awareness Program. Led by the Energy Action Team, the program helps educate personnel about diligent energy use within the workplace by promoting the Lights Off Initiative. Energy has also been saved through use of advanced building automation controls and energy monitoring software and hardware. [REDACTED]

Transport Canada developed a “how to” manual in early 2002 for use by policy and program staff when completing strategic environmental assessments (SEAs) of their proposed initiatives. In total, 85 department employees have been trained in the SEA process. Pollution prevention plays a key role in mitigating environmental impacts, and Transport Canada is obligated to ensure that SEAs are conducted on all applicable policy, plan, and program proposals. [REDACTED]

Behaviour Change

A study in 2000 estimated federal employee carbon dioxide emissions from transportation at 1.5 megatonnes per year. In response, Transport Canada, Health Canada, Environment Canada, and other federal departments promote “green” forms of transportation—walking, biking, public transit, and carpooling—to reduce employee-related emissions. For instance, Transport Canada provides bike racks at its Ottawa headquarters, and 51% of its employees participated in the National Commuter Challenge, an event involving several federal departments. Canada Post promotes alternative commuting options by offering incentives such as the Rainy Day Pass and a lower parking rate pass, available to employees using such options and only occasionally requiring parking. Environment Canada—Quebec Region recently implemented a federal employee travel management program to reduce single-occupant vehicle travel by federal employees for work purposes (both employee travel between residence and work and business travel within the Quebec City–Windsor corridor). The results of this project indicate a 20% reduction in greenhouse gas emissions relative to 1999, the baseline year. Also, greenhouse gas emissions data related to federal employee travels will now be tracked within the travel expert system. [REDACTED]

Greening the Office

Agriculture and Agri-Food Canada has installed video conferencing equipment in 39 boardrooms, desktop cameras, and one state-of-the-art E-conference facility. Adopting video conferencing technology will reduce the department's air emissions resulting from air and ground travel. [REDACTED]



Many federal departments have taken action to prevent the release of ODS.

PREVENTING RELEASE OF OZONE-DEPLETING SUBSTANCES

Federal activities account for about 10% of ozone-depleting substances (ODS) in use in Canada. Federal use of halocarbons includes refrigeration and air-conditioning, fire suppression, solvent degreasing, sterilization, pest control, and laboratories. Halocarbons are of national and international concern because they cause stratospheric ozone depletion (with a few exceptions) and contribute to climate change. Federal facilities are subject to the Federal Halocarbons Regulations under the *Canadian Environmental Protection Act, 1999* on federal lands. The regulations address the prevention of ODS pollution and certain alternatives. Many federal departments have taken action to prevent the release of ODS. For example, Health Canada's Longueuil Lab developed an ODS inventory and prepared a phase-out plan. Fisheries and Oceans Canada has removed 75% of its halon fire suppression systems at land-based facilities in the Maritimes Region, replacing many with hand-held carbon dioxide-based extinguishers. Abroad, the Department of Foreign Affairs and International Trade installed an ODS refrigerant recovery and recycling system for on-site reuse in New Delhi.

POLLUTION PREVENTION PLANNING COURSE AND CERTIFICATE

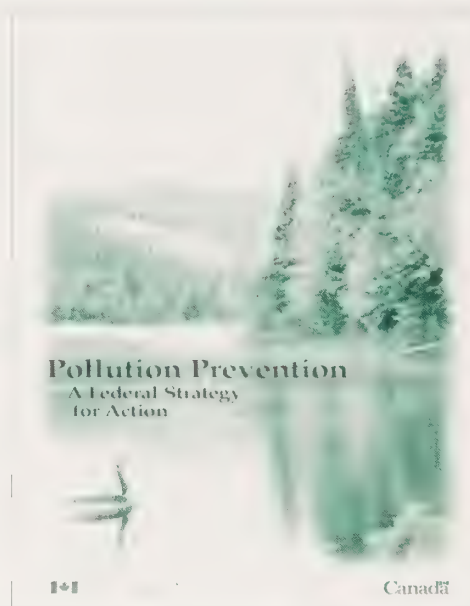
Environment Canada's National Office of Pollution Prevention and Environment Canada—Ontario Region contributed to the development of the 2.5-day “Pollution Prevention Planning & Beyond” course. The course is directed towards pollution prevention (P2) practitioners and professionals who are responsible for developing, implementing, and maintaining P2 programs for themselves or for businesses/organizations in Canada. The course is delivered by the Canadian Centre for Pollution Prevention and is directly linked to a P2 “planner” certificate. In 2001, 35 environmental professionals participated in this training course at Royal Roads University, University of Victoria, and University of Waterloo. A one-day P2 planning introductory course was also delivered. For more information, visit <http://www.c2p2online.com>.

Section 2A: Progress within the Federal Government (continued)

UPCOMING PROJECTS

Natural Resources Canada's Air Emissions Characterization Program will collect and analyze air emissions data from its facilities and produce action plans where corrective action may be required (e.g., maintenance of equipment, changes in practices or processes, etc.). A prioritization exercise will be completed before commencing characterization studies at specific facilities.

Human Resources Development Canada will evaluate all its fleet vehicles to determine the feasibility of purchasing alternative fuel vehicles and converting existing ones. It is also in the process of developing a Green Maintenance Checklist for approval and distribution to regions in the coming fiscal year. The checklist will include a series of tip sheets on driving and maintenance. When a fleet vehicle is serviced, the checklist is given to the mechanic for identification of completed green maintenance steps.



Pollution Prevention – A Federal Strategy for Action outlines the federal government's commitment to pollution prevention.

To view Pollution Prevention—
A Federal Strategy for Action, visit
<http://www.ec.gc.ca/pollution/strategy>.

Section 2A: Progress within the Federal Government (continued)

TRACKING PROGRESS AGAINST POLLUTION PREVENTION—A FEDERAL STRATEGY FOR ACTION¹

Goal: Institutionalize pollution prevention across all federal government activities

Actions:	Status:	Examples:
1. Incorporate pollution prevention into federal legislation.	Ongoing	<ul style="list-style-type: none">• <i>Canadian Environmental Protection Act, 1999</i>• <i>Nunavut Waters and Nunavut Surface Rights Tribunal Act</i>
2. Establish and implement green policies.	Ongoing	<ul style="list-style-type: none">• Significant number of activities within Greening of Government Operations
3. Establish a Commissioner of the Environment and Sustainable Development to advance pollution prevention in the federal government.	Complete	<ul style="list-style-type: none">• Commissioner established following changes to the Auditor General Act in 1995
4. Integrate pollution prevention into departmental policies and programs.	Ongoing	<ul style="list-style-type: none">• Environment Canada's Pollution Prevention Team• Atlantic Canada Opportunities Agency's program delivery• Federal Buildings Initiative• EnviroClub™ for Federal Facilities

¹ This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention within federal government operations.

On the Internet, view this report at
<http://www.ec.gc.ca/p2progress>.

Progress with Other Governments

**Federal pollution prevention strategy goal:
Foster a national pollution prevention effort.**

National Partners

Canadian governments have cooperated through the Canadian Council of Ministers of the Environment (CCME) since the early 1990s to address the phase-out of substances such as chlorofluorocarbons (CFCs) and halons that can deplete the ozone layer. The Federal-Provincial Working Group on Ozone-Depleting Substances and Halocarbon Alternatives has developed Canada's Strategy to Accelerate the Phase-Out of CFC and Halon Uses and to Dispose of the Surplus Stocks, to achieve an

orderly and affordable phase-out of CFCs and halons in Canada. An important component of the strategy is the National Action Plan for the Environmental Control of Ozone-Depleting Substances (ODS) and their Halocarbon Alternatives. The Action Plan provides a national framework for a harmonized approach by the federal, provincial, and territorial governments for implementation of an ozone layer protection program. CCME approved both the strategy and revised National Action Plan in May 2001.

2001 CCME POLLUTION PREVENTION AWARDS

The Canadian Council of Ministers of the Environment (CCME) gives national recognition to companies and organizations showing innovation or leadership in pollution prevention. The 2001 CCME Pollution Prevention Awards were presented to the following recipients:

- Calgary Transit's "Ride the Wind" project in Calgary, Alberta, for innovative design and implementation in powering its entire 100-car light-rail transit fleet with wind-generated electricity for the next 10 years.
- Cambridge Memorial Hospital (CMH) in Cambridge, Ontario, for developing a comprehensive environmental management system and being the first hospital in North America certified as ISO 14001 compliant. CMH's accomplishments have involved improving waste management programs to minimize the hospital's impact on the surrounding environment, increasing staff awareness of environmental issues through training, establishing arrangements with external stakeholders to address specific environmental issues, and developing programs to improve the hospital's environmental performance.
- School District 43 in Coquitlam, British Columbia, for its resource conservation program, which reduced energy consumption per unit area by almost 12.9% and emissions per unit area by 13.6%. The district achieved absolute reductions in greenhouse gas emissions of 5.7%, which represent more than 3300 tonnes of greenhouse gases annually.
- Dana Canada, Spicer Driveshaft Division, Thorold, Ontario, in the medium-sized business category, for its process improvement approach, which led to the removal of parts washers in two departments and the reduction of nitrogen oxide and other contaminant emissions by more than 60%.
- Dana Canada, Thorold Frame Plant, Thorold, Ontario, for reformulation of a draw compound and parts washing soap, which reduced employee skin irritation, water consumption, wastewater treatment, and energy consumption. It reduced parts washer water temperature, producing annual energy cost savings of more than \$20,000 and a 28% reduction in greenhouse gas emissions.
- IBM Canada in Bromont, Québec, large business category, for developing a micro-chip joining process that eliminated chemical solvent cleaning and reduced the manufacturing cycle time by 20%. In addition, advances in water treatment increased treatment efficiency by eliminating hazardous wastes and reutilizing energy. Ozonation of utility plant waters reduced water consumption and minimized chemical treatment requirements. Savings from these three pollution prevention projects exceed \$1.5 million annually.

For more details on the CCME awards, visit the CCME website at <http://www.ccme.ca>.



Section 2B: Progress with Other Governments (continued)

Provincial, Territorial, and Municipal Partners

The City of Toronto revised its sewer use bylaw after City Council decided to stop incineration and implement 100% biosolids beneficial use by December 31, 2000. Environment Canada assisted the City with pollution prevention aspects of the new bylaw. In 2001–2002 Environment Canada financially supported and participated in the pollution prevention training sessions provided by the City for industry sectors affected by the bylaw. [Image]

Industry Canada's Environmental Affairs Branch, working in partnership with industry, municipalities, associations, and provincial, and federal governments, began assessing the feasibility of a municipality-based environmental management system (EMS) using the ISO 14001 standard. A one-year municipality-based EMS pilot initiative will deliver four workshops to facilitate the implementation of a municipal EMS. Municipalities involved in the initiative are working with Environment Canada on the pollution prevention components of the EMS. The first workshop in Vancouver, British Columbia, in March involved 50 participants. Environment Canada—Atlantic Region is subsidizing participation costs for four Atlantic Region municipalities. [Image]

In March 2002, the Governments of Canada and Quebec, along with the Société de Transport de Montréal, Rothsay Laurenco, the Canadian Renewable Fuels Association, and the Fédération des Producteurs de Cultures Commerciales du Québec, launched the BIOBUS biodiesel demonstration and impact assessment project in Montréal. The project will gain practical experience in the use of biodiesel under real-life conditions, particularly in cold weather, and demonstrate the feasibility of supplying biodiesel to a mass transit company. It will also assess the economic and environmental impact of using this fuel, which is made from recycled sub-food-grade vegetable oil and animal fat. With a budget of over \$1.5 million, the one-year project will require 200,000 litres of vegetable oil and 100,000 litres of animal fat. The project is being co-funded by the governments of Canada and Quebec. [Image]

Regional Initiatives

The five-year Georgia Basin Ecosystem Initiative supports key priorities such as protecting air and water quality, developing sustainable communities, and building partnerships to maintain the viability of the region in British Columbia. Efforts to improve water quality include a Stormwater Management Guidebook, piloted within the Regional District of Nanaimo, to assist local governments in developing effective programs to minimize the environmental impacts of stormwater. The Georgia Basin Futures Project is using high technology to engage the public in an interactive process that shows us how the choices we make can impact our environment. The goal is to enhance human well-being while protecting ecological health in the Georgia Basin by 2040. For more information, visit http://www.pyr.ec.gc.ca/georgiabasin/gbeiIndex_e.htm. [Image]

Canada's National Program of Action for the Protection of the Marine Environment from Land-based Activities (NPA) is led by Fisheries and Oceans Canada and Environment Canada and has been prepared through the collaborative efforts of the federal, provincial, and territorial governments. The NPA complements integrated management in the coastal zone, coastal marine protected areas, and pollution prevention. In November 2001, Canada made its first National Report to the United Nations Environment Programme on NPA implementation. This report describes the current framework for managing the marine environment in Canada, types of programs under way across the country, and how these programs are contributing to NPA goals. For more information, visit http://www.ec.gc.ca/press/nat_b_e.htm. [Image]



Environment Canada assisted the City of Toronto with the P2 aspects of its revised sewer use bylaw, which aims to implement a 100% biosolids beneficial use policy.

The governments of Canada and Ontario have drafted the Canada–Ontario Agreement Respecting the Great Lakes Basin Ecosystem (COA). The Agreement outlines how the two governments will cooperate and coordinate their efforts to restore, protect, and conserve the Great Lakes basin ecosystem. It builds on the actions taken through previous agreements and focuses priorities for future actions. The draft COA was made available for public comment. For more information, visit <http://www.on.ec.gc.ca/coa/>. [Image]

Pollution prevention initiatives under Environment Canada—Atlantic Region's Municipal Wastewater Strategy focused on improving awareness of the need for control of pollutants before they enter the sewage system in order to protect pipes, workers, treatment plants, biosolids, and the receiving environment. In partnership with Atlantic Coastal Action Program

Section 2B: Progress with Other Governments (continued)



The Aboriginal and Northern Climate Change Program focuses on engaging Aboriginal people and Northerners in climate change activities.

organizations, general and technical briefings were provided to federal, provincial, and municipal officials and the public. At the 2001 Canadian Pollution Prevention Roundtable in St. John's, Newfoundland, Environment Canada initiated and supported formation of a Municipal Government Workgroup. The workgroup is where municipalities can work collaboratively with one another and with other partners to prevent pollution locally, regionally, and nationally. In addition, the department promoted and provided technical advice on the incorporation of pollution prevention into the national Municipal Wastewater Effluent Risk Management Strategy, Nova Scotia's water and sewage policies, the Halifax Harbour Solutions Project, and Public Works and Government Services Canada's Water Infrastructure Model Screening Project.

Partnerships with the Aboriginal Community

Indian and Northern Affairs Canada, in partnership with Natural Resources Canada, has developed the Aboriginal and Northern Climate Change Program (ANCCP) to help Canadians meet the Kyoto Protocol target of reducing greenhouse gas emissions 6% below 1990 levels by the period 2008–2012. Objectives of ANCCP focus on engaging Aboriginal people and Northerners in climate

change activities and undertaking specific initiatives to address the energy needs of Aboriginal and northern communities.

In April 2002, the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* was passed. One of the main objectives of this statute is the prevention of water pollution in Nunavut. The passage of the Act fulfils the requirement for legislation clarifying the Board's and Tribunal's powers and establishes a water management and surface rights regime for Nunavut.

As part of Health Canada's 2000 Sustainable Development Strategy, the First Nations and Inuit Health Branch is working to increase energy efficiency and reduce air emissions at all its hospital facilities. Information collected for the air emissions summary will be used to determine where Health Canada should invest resources in air emissions evaluations or audits.

Section 2B: Progress with Other Governments (continued)

UPCOMING PROJECTS

Environment Canada—Pacific and Yukon Region partnered with Western Economic Diversification Canada and the Fraser Basin Council to fund a study to identify communities within British Columbia for pilot eco-industrial projects. Eco-industrial projects include the design of products, processes, and industrial infrastructures that interlock with natural ecosystems to improve the efficiencies of material flows and reduce the ecological footprint of an industry's processes and products. Two potential projects for the near future address greenhouse gas emissions and toxics and waste reduction.

Two Agriculture and Agri-Food Canada research facilities in collaboration with the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec agreed to undertake a research project aimed at reducing greenhouse gas emissions produced by Canadian farmers.

TRACKING PROGRESS AGAINST *POLLUTION PREVENTION—A FEDERAL STRATEGY FOR ACTION*¹

Goal: Foster a national pollution prevention effort

Actions:	Status:	Examples:
1. Review legislation, regulations, and policy for opportunities to harmonize approaches to pollution prevention.	Ongoing	• Canadian Council of Ministers of the Environment (CCME) Canada-wide Standards
2. Develop practical tools, such as guidelines and codes of practice, to enable people to implement pollution prevention at an operational level.	Ongoing	• Municipal Environmental Management System pilot • Municipal Wastewater Effluent Risk Management Strategy
3. Educate the public about pollution prevention and train relevant groups in the technical aspects of pollution prevention.	Ongoing	• CCME Pollution Prevention Awards

¹ This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention with other orders of government in Canada.

Progress with the Private Sector

Federal pollution prevention strategy goal: Achieve a climate in which pollution prevention becomes a major consideration in private sector activities.

Industrial Pollution Prevention

The Accelerated Reduction and Elimination of Toxics (ARET) program was a multi-stakeholder pollution prevention and abatement initiative. Through voluntary actions, it sought virtual elimination of 30 persistent, bioaccumulative, and toxic substances, as well as significant reductions in emissions of another 87 toxic substances. Overall, participants have reported a 72% reduction in the release of toxics included in the ARET program from base-year levels. A successor program is under development. The Steering Committee is working to define a program that addresses toxic substances, including the *Canadian Environmental Protection Act, 1999* Schedule 1 substances and other pollutants from the National Pollutant Release Inventory substances list.

The Canadian Industry Program for Energy Conservation (CIPEC) represents more than 5000 companies and reports on approximately 95% of total industrial energy demand through 25 task forces. CIPEC's aggregate target is a 1% overall improvement in industrial energy intensity² per year through to 2005. Building on CIPEC, Natural Resources Canada is working with industry through the Industrial Energy Innovators Initiative to explore energy efficiency options and strategies. Based on floor space, by March 2002, 29.5% of the commercial and institutional sectors had been recruited as innovators. Projects funded by March 2002 should result in greenhouse gas reductions of 132 kilotonnes per year. For more information on CIPEC, visit their website at <http://oee.nrcan.gc.ca/cipec/ieep/cipec/index.cfm>.

Industry Canada reviews the success of select voluntary pollution prevention measures and identifies areas where improvements could be made, as well as candidate sectors for new initiatives. For example, Industry Canada participated as a member of the Government Advisory Panel to the Vinyl Council of Canada



The Canadian Industry Program for Energy Conservation represents more than 5000 companies and reports on approximately 95% of total industrial energy demand.

Environmental Management Program (EMP). The EMP consists of six guiding principles, five commitment areas, and a series of practical action steps designed with pollution prevention as its overall objective. The Council issued its second annual report on the EMP in December 2001. For more information, visit <http://www.plastics.ca/vinyl>.

In June 2001, a new Policy Framework for Environmental Performance Agreements was approved by the federal Minister of the Environment, which will strengthen the effectiveness of Environment Canada's voluntary initiatives. Environmental Performance Agreements are voluntary agreements negotiated among industry, government agencies, and non-governmental organizations to achieve specified environmental results. In 2001–2002, three agreements were signed: a Memorandum of

² Energy intensity is the total energy consumed by a sector divided by the total amount of activity in that sector over a one-year period.

Section 2C: Progress with the Private Sector (continued)

Understanding with the Canadian Chemical Producers' Association, which sets out targets to reduce releases of volatile organic compounds; an Environmental Performance Agreement with Dow Chemical, which sets out targets to reduce the release of 1,2-dichloroethane; and an Environmental Performance Agreement for a monitoring program that will be used to assess the risks associated with emissions of refractory ceramic fibre [E]

Sector-Specific Initiatives Agriculture and Food

In June 2001, Environment Canada—Atlantic Region released national guidance documents for use in the environmental assessment of freshwater and marine aquaculture projects. The guidelines emphasize the value of pollution prevention in project siting and design to minimize the potential for adverse impacts. [E]

A pilot project in Prince Edward Island's Bedeque Bay determined whether daily, specific weather-related spray advisories to farmers would influence pesticide spraying decisions. The project was a cooperative effort between the Bedeque Bay Environmental Management Association and Environment Canada. Seventeen farmers received a daily spraying advisory indicating the probability of either spray drift or rain-induced runoff. An end of the season survey revealed that 30% of farmers changed their practices based on the information, resulting in a reduced potential for drift and runoff. A second Environment Canada-led project modelled the effectiveness of soil conservation practices in protecting water quality. Model simulations indicate that pesticide compounds used in potato production in Prince Edward Island are lost from target fields, mainly dissolved in runoff water, and, to a lesser extent, adhered to soil particles. Overall, modelling predictions show that soil conservation measures such as strip cropping within terraces or strip cropping alone can be highly effective in reducing pesticide loss from fields. [E]

Soil conservation measures such as strip cropping within terraces or strip cropping alone can be highly effective in reducing pesticide loss from fields.



Automotive

The Automotive Parts Manufacturers' Association negotiated a five-year Environmental Performance Agreement with Environment Canada and Industry Canada. The agreement builds pollution prevention performance targets into an ISO 14001 Environmental Management System platform. Targets for the association include a 20% reduction in volatile organic compound emissions by 2007 and a 3% reduction in carbon dioxide emissions by 2007, both from a 2000 base year; and individual facility pollution prevention initiatives for targeted toxic substances. Facilities will be registered to ISO 14001 by December 2003. This agreement should be finalized by year-end 2002. For more information, visit <http://www.apma.ca>. [E]

Now in its ninth year, the Canadian Automotive Vehicle Manufacturing Pollution Prevention Project has a goal of producing a verifiable reduction and/or elimination of persistent toxics and other substances used, generated, or released in automotive manufacturing facilities. The project is an industry – government cooperative partnership involving the Canadian Vehicle Manufacturers' Association (CVMA), Environment Canada, the Ontario Ministry of the

Environment, DaimlerChrysler, Ford, and General Motors. A combination of techniques has reduced and/or eliminated at the source more than 363 356.89 tonnes of industrial solid waste and 40 777.13 tonnes of toxic chemicals and other substances of concern. In 2002, the CVMA began renegotiating an agreement with Environment Canada that will build pollution prevention targets into the ISO 14001 Environmental Management System platform. For more information, visit <http://www.cvma.ca>. [E]

Under Natural Resources Canada's EnerGuide for Vehicles initiative, vehicle manufacturers voluntarily attach an EnerGuide label to new vehicles sold in Canada. The label helps consumers select the most fuel-efficient vehicle for their needs by giving the vehicle's fuel consumption rating and estimated annual fuel costs. For the period November 2001 to June 2002, the department distributed 518 000 copies of the Fuel Consumption Guide. [E]

Section 2C: Progress with the Private Sector (continued)

The Natural Gas for Vehicles Program provides a financial incentive for the purchase of vehicles capable of operating on natural gas and for fuelling infrastructure. Over 1500 vehicles and five fuelling facilities have been funded to date through Natural Resources Canada. The program applies to regions of Canada serviced by Alberta natural gas and is delivered through agents from the natural gas vehicle industry.

The Switch Out Program is Canada's first program to address the use of mercury in vehicles and the release of mercury when vehicles are recycled at their end of life. With support from various stakeholders, including Environment Canada, approximately 2500 mercury switches were recovered from vehicles during the pilot project. The long-term goals are to collect 30 000 mercury switches, engage the participation of 100 automobile recyclers in Ontario, and expand the program across Canada. For more information, visit <http://www.switchout.ca>.

Building Design

Industry Canada, in partnership with Greater Vancouver Regional District and the private sector, has undertaken an initiative to design and develop a working prototype of a sustainable building, affordable within current market constraints. One prototype design objective is the reduction of the pollutants associated with building construction and operation. During 2001–2002, the “workbook” was consolidated into a series of displays and presentations and incorporated into an outreach program targeted at architects, building engineers, planners, developers, suppliers, regulators, and the public.

Industry Canada commissioned a design protocol for an “Eco-Industrial Complex”—a type of eco-industrial park contained in a single facility. The complex combines the principles of industrial ecology, eco-efficiency, and green building design. One design objective is the overall reduction of pollutants from the facility, through by-product synergy, designed eco-efficiency, and green building design features. During 2001–2002, a draft Eco-Industrial Complex design protocol was completed, using a proposed development as a case study.

Chemical

The Canadian Chemical Producers' Association, Environment Canada, Industry Canada, Health Canada, and the governments of Ontario and Alberta signed a new Memorandum of Understanding (MOU) in February 2002. The MOU will be in force until December 31, 2005, and will further reduce volatile organic compound emissions that contribute to smog.

Construction

Natural Resources Canada's International Centre for the Sustainable Development of Cement and Concrete promotes the use of EcoSmart™ concrete. This concrete has the potential to substantially reduce emissions of carbon dioxide by substituting fly ash and other materials for the Portland cement traditionally used in concrete. Fly ash is a by-product of



The use of EcoSmart™ concrete has the potential to substantially reduce emissions of carbon dioxide.

coal-burning power plants and is normally destined for landfill. Replacing one tonne of cement with one tonne of fly ash offsets industrial carbon dioxide emissions by approximately one tonne, in addition to providing a use for an industrial by-product. During 2001–2002, Natural Resources Canada helped transfer EcoSmart™ concrete technology to the architecture, construction, engineering, and materials communities by conducting and participating in seven seminars and completing the Design Mission for a highway project in India. For more information, visit <http://www.ecosmart.ca>.

HELPFUL ENVIRONMENTAL BUSINESS INFORMATION

To view the pollution prevention capabilities of Canada's best technology and service firms, visit Canadian Environmental Solutions (CES) at <http://strategis.ic.gc.ca/ces>.

Developed by Industry Canada, CES addresses environmental problems related to water, air, soil, energy, climate change, and research and development. It is a direct link to solutions and the Canadian companies supplying them. CES works because it is extensive—it describes 2000 environmental problems and solutions, along with more than 900 solution-providing companies.



Section 2C: Progress with the Private Sector (continued)

Industry Canada, along with Natural Resources Canada, Public Works and Government Services Canada, and the National Research Council, is addressing some of the challenges slowing the adoption and use of intelligent building technologies. These technologies, if adopted, may lead to improvements in energy efficiency and indoor air quality. In 2001–2002, a checklist of key intelligent building technologies and planning activities was developed for a demonstration project at an Industry Canada building in Ottawa.

Natural Resources Canada's Commercial Buildings Incentive Program provides financial incentives to building owners who construct buildings that are at least 25% more energy efficient than similar buildings constructed to the Model National Energy Code for Buildings. In 2001–2002, 63 new buildings received support. Since the program started, 164 new buildings have received support, resulting in an annual reduction of 23 kilotonnes of carbon dioxide. Similarly, Natural Resources Canada manages the R-2000 Program, which encourages the building of energy-efficient houses that exceed the efficiency level required by current Canadian building codes by 30%. In 2001–2002, all active builders were trained to a new standard, and more than 20 new builders and professionals received training. To date, over 10 000 houses have been certified as meeting the R-2000 performance standard for energy efficiency. An R-2000 house releases on average 1.4 tonnes of carbon dioxide per year less than a conventional house.

For the past 15 years, an apartment building in central Halifax has been harnessing the sun to meet 20% of its domestic hot water requirements. The building is equipped with 100 roof-top solar panels. Original installation costs were offset by a federal solar energy grant from Natural Resources Canada. Environment Canada is currently working with the apartment owners to increase the solar fraction from 20% to 70% by improving thermal storage capacity. The apartment building owner estimates savings of about 20% of the domestic hot

water load, or 20 000 litres of fuel per year. The underground thermal energy storage pilot project should double fuel oil savings and reduce greenhouse gas emissions by another 42 tonnes, giving a total reduction of 100 tonnes.

Environment Canada—Prairie and Northern Region, in partnership with the Alberta Roadbuilders and Heavy Construction Association, developed a pollution prevention manual with the goal of encouraging the reduced use of toxic substances and improved environmental performance. Long-term targets include the adoption of the manual by the Cities of Edmonton and Calgary as part of their road building contracts.

Furniture Manufacturing

Environment Canada introduced a pollution prevention project in the Quebec furniture industry. The project's aim is to reduce emissions of volatile organic compounds and greenhouse gases and products identified as hazardous or toxic under the Canadian Environmental Protection Act, 1999, such as solvents, paints, and pigments. Environment Canada—Quebec Region developed a tool for diagnosing pollution prevention opportunities (e.g., water-based coatings and more efficient application equipment) in the wood finishing industry. The tool will be used to identify facilities having the greatest potential for implementing pollution prevention activities, as well as to train facility employees.

Further consultations were held with industry, non-governmental organizations, and the federal and provincial governments aimed at reducing volatile organic compound (VOC) emissions from the application of coatings in the wood finishing industry. With the support of Environment Canada, the Canadian Council of Ministers of the Environment will publish a code of practice within the next two years. The code may encourage voluntary emissions reductions or may

serve as a model for regulation of the industry by provincial or regional governments. There are approximately 900 wood finishing plants in Canada, and it is estimated that this group emits 11.2 kilotonnes of VOCs annually.

Harbours/Marinas/Shipyards

The CleanMarine Eco-Rating Certification Project is a three-year agreement between the Ontario Marine Operators' Association, the Ontario Ministry of the Environment, and Environment Canada to certify 150 marinas in Ontario and rate them based on their environmental performance. Participants are provided with a CleanMarine Best Management Practices Handbook. Marinas are audited for their performance and awarded an achievement rating. Marinas participating in the program must be committed to continuously improving their environmental practices and performance each year. Certified marinas are identified and listed in the Ontario Marina Directory. The certification program was developed with input from various steering committee members from the CleanMarine Partnership, which includes representatives from the boating industry, associations, media, government agencies, and TerraChoice Environmental Services Inc. In 2001, 50 Ontario marinas were rated, and another 50 will be rated in each of 2002 and 2003. For more information, visit <http://www.omoa.com>.

Fisheries and Oceans Canada established and implemented environmental management plans (EMPs) for 438 of 638 client-managed small craft harbours. An EMP's purpose is to identify all harbour activities and operations that might have potentially negative impacts on the environment and outline a plan to manage the operations and activities in a way to reduce these impacts.

Section 2C: Progress with the Private Sector (continued)

Environment Canada—Atlantic Region, in partnership with National Defence, is committed to reducing marine environmental impacts from ship maintenance. Both departments are currently exploring the use of hydrosprays as alternatives to abrasive polishing for removing marine growth from ships. In addition, tender specifications on military ship maintenance have been revised to include more detail on environmental issues from contractors.

Health Care

The Healthcare EnviroNet website was established with support from Environment Canada—Ontario Region and is developed and maintained by the Canadian Centre for Pollution Prevention in consultation and partnership with health care and non-governmental organizations. The website shows health care staff how to take action to reduce their facilities' environmental impact. Similarly, Health Canada supports the Healthcare EnviroNet website and has worked in partnership with various medical organizations (e.g., Canadian Association of Physicians for the Environment and Canadian Coalition for Green Health Care) to develop materials on greening Canadian hospitals. For more information on these initiatives, visit <http://www.greenhealthcare.ca> and Healthcare EnviroNet at <http://www.c2p2online.com> (click on affiliated websites).

In 2001, Environment Canada—Atlantic Region and the Nova Scotia Department of Environment and Labour initiated a pollution prevention program targeting mercury use at 17 hospitals. Preliminary evaluation of the mercury use pattern surveys indicates that pollution prevention opportunities (e.g., product substitution) exist. In addition, many hospitals have already made efforts to reduce mercury use and implement environmentally responsible mercury management practices. Despite those efforts, mercury concentrations in some hospital wastewaters remain higher than background concentrations. Phase 2 focuses on better tracking of mercury through a hospital sewer system, and identification of pollution prevention opportunities at two provincial hospitals is under way.


In keeping with the Canadian Council of Ministers of the Environment's goal of cost-effective actions to minimize releases of mercury and its compounds, a Canada-wide Standard (CWS) for reducing environmental releases of dental amalgam has been developed. The removal of old fillings and shaping/polishing of new fillings generate a mercury-containing waste that becomes a concern, as these practices result in amalgam particles being vacuumed from the mouth and discharged to sewage systems. The CWS seeks to significantly improve the capture of amalgam wastes through best management practices. Best management practices are defined as including the use of an ISO-certified amalgam trap, or equivalent, and appropriate management of waste so that mercury does not enter the environment. The standard sets out to achieve a 95% national reduction in mercury releases from dental amalgam waste discharges to the environment by 2005, from a base year of 2000. For more information, visit <http://www.ec.gc.ca/mercury>.

Environment Canada and the Prince Edward Island Department of Fisheries, Aquaculture and Environment signed a Memorandum of Understanding on Dental Amalgam Waste Management. Phase 1 of the project, undertaken in 2001–2002, involved activities aimed at achieving compliance with the Canada-wide Standard for Mercury in Dental Amalgam. The feasibility, including costs, of installing ISO 11143-certified dental amalgam separators was investigated, opportunities for mercury reduction were identified, and educational materials for dentists were developed. Phase 2 is under development and will include testing of an Environmental Technology Verification sampling protocol and *in situ* testing of the effectiveness of the separators.


Information Technology

Industry Canada is assisting the Information Technology Association of Canada (ITAC) in the development of an Extended Producer Responsibility Program for the take-back and management of waste and surplus electronic and telecommunications equipment. Extended Producer Responsibility is a waste minimization strategy that extends the producers' traditional environmental responsibilities to the post-consumer stage of a product's life cycle. This sends an implicit signal to producers to alter the design of their products so as to reduce


Section 2C: Progress with the Private Sector (continued)


their environmental impact. ITAC produced for review a National Action Plan for the end of life information technology equipment recovery program. The target is 50% waste recovery by 2006. This initiative will reduce the potential releases of toxic substances such as mercury, lead, and cadmium. Other key partners engaged in this project include Environment Canada, Natural Resources Canada, the National Research Council, provincial governments, and municipalities. 


Metal Finishing


The Metal Finishing Industry Project is a partnership among Environment Canada, the Ontario Ministry of the Environment, the Canadian Association of Metal Finishers, and related industry associations that began in 1993. The project's goals are to develop tools for formulating pollution prevention plans for reduction of toxic substances, to promote development and implementation of site-specific pollution prevention plans, and to publish the progress of substance use reductions under the plans. The task force released its Eighth Progress Report in December 2001. There are 27 metal finishing companies participating in the project, with 51 documented case studies. For more information, visit <http://www.camf-acfm.com>. 

Mining


Natural Resources Canada co-leads a North American consortium aimed at bringing hydrogen fuel cells to underground mining operations. The department is also leading the development of a small hybrid diesel-electric scooptram for narrow vein mines. The long-term objective is to retrofit underground mining vehicle fleets, currently powered by diesel fuel, with less polluting powertrains. In Canada, there are about 3500 underground diesel vehicles that emit 0.4 megatonnes of carbon dioxide per year. Total world underground carbon dioxide emissions from diesel vehicles are estimated at 4.5 megatonnes annually. 


Natural Resources Canada is also heading a project to develop a narrow vein mining system that would mine only the veins and leave the surrounding rock in place using thermal fragmentation technology. This system will substantially reduce the use of chemical explosives. It could also be used in open pit mining. Another technology under development reduces energy consumption associated with mine ventilation. Electricity for ventilation represents approximately 40% of the electrical energy required for underground mine production. Ventilation on demand identifies when air is required, where it is required, and at what level. On-demand systems should reduce ventilation electrical costs by 30%. 

CANMET—Mining and Mineral Sciences Laboratories of Natural Resources Canada coordinates the government-industry Thiosalts Consortium aimed at developing innovative technology for the prevention, treatment, and monitoring of thiosalts produced during the processing of sulphur-rich ores. Degradation of thiosalts within the environment leads to increased acidity, which may affect fish in the receiving environment. Examples of techniques used to prevent thiosalts from generating acidity include bacterial oxidation of thiosalts and oxidation using hydrogen peroxide. Research has helped to increase understanding of thiosalt technical issues, allowing industry to comply with new regulations in some provinces. 

In 2001–2002, the first phase of the Toxicological Investigations of Mine Effluents (TIME) Network was launched by Natural Resources Canada's Mining and Mineral Sciences Laboratories. One of the TIME projects was Best Management Practices (BMP) for Ammonia in the Canadian Mining Industry. Ammonia is present in mine effluents due to the widespread use of nitrate-based explosives. Water contamination is primarily a result of spillage or lack of detonation. BMP plans and training can minimize ammonia discharges at the source. 

Oil and Gas

Environment Canada—Prairie and Northern Region supported the development of pollution prevention expertise and materials to assist in reducing the impact that the oil and gas sector has in the ecologically fragile areas of the Northwest Territories and Nunavut. A document outlining pollution prevention opportunities was finalized, as was a video detailing environmental management concerns with the disposal of drilling fluids in the North. The traditional use of in-ground sumps for disposal was identified as a significant toxic and environmental risk. Further work is required to identify alternative waste management techniques. 

Natural Resources Canada, in partnership with industry, performs research on the management of oil and gas pipeline corrosion. This work helps industry reduce the incidence of oil and gas leaks. During 2001–2002, three computer models were developed for use in different aspects of corrosion prevention and management. 

Printing and Graphics

CleanPrint Canada is a pollution prevention project that works with printing and graphics firms, associations, and other governments to reduce and/or eliminate the use, generation, or release of toxic substances and other substances of concern. Environment Canada is a leader and funding participant in various regional organizations within CleanPrint Canada.

In Ontario, four print industry workshops were delivered by CleanPrint Ontario in 2001–2002 to achieve reductions in pollutant releases and comply with municipal pollution prevention bylaws, provincial regulations, and National Pollutant Release Inventory reporting. Negotiations were initiated to develop an Environmental Performance Agreement with the screen printing sector in Ontario.

Section 2C: Progress with the Private Sector (continued)

CleanPrint British Columbia promotes environmental management tools and encourages printers to complete environmental management plans (EMPs). Long-term project goals include reduction of volatile organic compound (VOC) emissions from printing in the Lower Fraser Valley to 20% of 1985 levels by 2005, reduction of silver and VOC discharges to the Capital Regional District sewer system by 50%, and contribution to a 50% reduction in municipal solid waste in British Columbia. At the CleanPrint British Columbia website, printers can access best management practices, posters, how-to-guides for preparing EMPs, and a guide to environmental regulations.

Additional regional printing and graphics industry initiatives can be found at <http://www.cleanprint.org>.

Tourism

The Golf Course EcoEfficiency Project is a partnership between GreenLinks Eco-Efficiency Services (TerraChoice Environmental Services Inc.), Burnside Golf Services, and Environment Canada to promote pollution prevention and other environmental management initiatives. In 2002, the final year of a three-year agreement, 25 of the 28 golf courses participating in the Ontario pilot project met or exceeded the goals and objectives of the project. Many courses reduced pesticide and other chemical use and achieved reductions in water and energy consumption through implementation of pollution prevention initiatives and projects identified by the consulting team. For more information, visit <http://www.greenlinks.net>.

"Camp Green, Canada!" encourages recreational vehicle owners to use non-toxic wastewater treatment products in their holding tanks rather than environmentally harmful formaldehyde and quarternary ammonia-based compounds. Nova Scotia was the first province in Canada to embrace unified promotion of

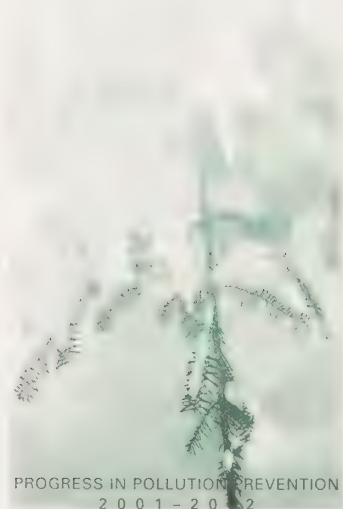
In 2002, 25 of the 28 golf courses participating in the Ontario Golf Course EcoEfficiency Pilot Project met or exceeded the goals and objectives of the project.



biological treatment alternatives. In 2001, the "Camp Green, Canada!" campaign was launched in public and private campgrounds across the country. Environment Canada from Atlantic Region, Ontario Region, and Pacific and Yukon Region along with Parks Canada promoted "Camp Green, Canada!" by distributing 100 000 campaign information cards and 1000 promotional posters to campground operators. In Ontario, 85 privately owned campgrounds participated by promoting the benefits of using non-toxic holding tank products. Three-year performance targets include 70% private, 80% provincial, and 100% federal campgrounds to be designated chemical free. For 2002, additional activities include development of an outreach plan for use in Quebec Region and Prairie and Northern Region and in the northern United States. For more information, visit <http://www.campgreencanada.ca>.

Transportation

In February 2000, a Memorandum of Understanding was signed by the Ottawa-Carleton Regional Transit Commission (OC Transpo) and Environment Canada to implement a number of pollution prevention (P2) projects. The main garage facility was chosen to demonstrate how various daily operational activities could be modified or changed to eliminate or reduce the risk of pollution. Project implementation took place throughout 2000 and concluded at the end of March 2001 with the development of a website document. Environment Canada and OC Transpo continue to work closely in monitoring



Section 2C: Progress with the Private Sector (continued)

all P2 projects. For more information, visit <http://www.on.ec.gc.ca/pollution/fpd/prevention/6700-e.html>. []

Training and Awareness

In Atlantic Region, Environment Canada offered a Marine Spill Response Operations Course in conjunction with the Canadian Coast Guard in January 2002. The course involved training for oil spill prevention, preparedness, and response. []

Natural Resources Canada's FleetSmart program helps the commercial vehicle fleet sector to improve energy efficiency, decrease operating costs, and reduce fleet operation emissions. The FleetSmart Tool Kit contains guides on aspects of fleet energy management—from computerization and alternative fuel options to vehicle maintenance and procurement. Training in fuel-efficient driving techniques is another key product of the FleetSmart Program. In 2001, 14 workshops were held with 280 driver trainers. For more information, visit <http://fleetsmart.nrcan.gc.ca>. []

In 2001–2002, the Atlantic Canada Opportunities Agency (ACOA) developed a generic sustainable development strategy fact sheet for insertion in every letter of acknowledgement to ACOA program applicants. The sheet outlines the concept of eco-efficiency and benefits of operating an environmentally responsible business. In addition, all ACOA Program Officers received eco-efficiency training. Two eco-efficiency reviews were conducted as a pilot with the intention of developing industry case studies for marketing purposes. []

In 2001–2002, the Building Sustainable Enterprises program was launched. This initiative supports industry workshops on eco-efficiency concepts and tools, such as Design for Environment, Life Cycle Management, Environmental Management Systems, Eco-Reporting, Indicators, and Supply Chain Management. The first workshop, held in April 2002 in Vancouver, attracted approximately 50 participants. Industry Canada as well as Natural Resources Canada, Environment Canada, and the National Roundtable on



In March 2001 the implementation of a P2 project at OTranspo's main garage facility was completed.

the Environment and the Economy participate on the program's federal Steering Committee. []

Small and Medium-Sized Businesses

EnviroClub™ is a federal-private sector initiative launched by Environment Canada—Quebec Region in 1998 with financial support from Economic Development Canada, the National Research Council of Canada, and the Climate Change Action Fund. Its purpose is to introduce pollution prevention projects or develop environmental management systems in small and medium-sized businesses (SMEs). During 2001–2002, two Enviroclubs were established (Saguenay-Lac-St-Jean 2000 and Central Quebec), along with a total of 18 pollution prevention projects. To date, participating SMEs have achieved the following reductions: volatile organic compounds, 4.3 tonnes/year; hazardous waste, 505 tonnes/year; and greenhouse gases, 24 kilotonnes of carbon dioxide equivalent/year. Building on local business interest, the Atlantic Canada Opportunities Agency, in partnership with Environment Canada and Business New Brunswick, initiated a Miramichi EnviroClub™, where companies voluntarily undertook a series of workshops on environmental management and pollution prevention.

This EnviroClub™ is being broadened to cover a larger area of northern New Brunswick. []

The Toronto Region Sustainability Program is intended to advance the environmental performance of small to medium-sized enterprises and manufacturing facilities. Objectives include acting to reduce smog precursors and moving to zero generation of toxic wastes. The program will be delivered on Environment Canada—Ontario Region's behalf by the Ontario Centre for Environmental Technology Advancement in partnership with Environment Canada's National Office of Pollution Prevention, the Ontario Ministry of the Environment, the City of Toronto, and various stakeholders. The program activities started in 2001–2002 and will last three to five years. Pollutant reductions to date include 340 tonnes of volatile organic compounds, 15 kilograms of metals, 170 tonnes of process waste, 2000 tonnes of water, and 2 tonnes of greenhouse gases. []

Section 2C: Progress with the Private Sector (continued)

The Business Water Quality Program is a five-year partnership among Environment Canada, the Regional Municipality of Waterloo, and the Ontario Ministry of the Environment. The program educates small and medium-sized enterprises on the benefits of pollution prevention planning and the toxics reduction provisions of the *Canadian Environmental Protection Act, 1999*, with a primary goal of preventing spills to groundwater, surface water, and sewers. In 2001–2002, 14 facilities completed a facility review and assessment and realized the following: elimination of 415 litres of ethylene glycol/chlorinated cleaning solvents and 337 000 kilograms of phenolic resin filter paper; reduction of 200 tonnes per year of paint sludge, 110 cubic metres per year of water, and 8800 tonnes per year of carbon dioxide emissions; and reductions of biological oxygen demand, suspended solids, and phenols in the wastewater effluent.

The Environmental Supply Chain Management Pilot Project is aimed at small and medium-sized enterprises (SMEs), with the objective of exploring and developing the potential for supply chain management as a means to encourage greenhouse gas emission reduction activities. This project will encourage SMEs to make changes in business/production processes and use new technologies. The project steering committee consists of Industry Canada, Voluntary Challenge and Registry Inc., and industry representatives.

Environment Canada was a partner in the EcoDesign Innovation (EDI) Pilot Program with Western Economic Diversification Canada, Industry Canada, and the Industrial Research Assistance Program of the National Research Council. EDI assists British Columbia's small manufacturing, plastics, food processing, and wood processing sectors to increase competitiveness through process efficiency. The EDI pilot stage ran from January 2001 until October 2001. Eight manufacturing companies participated in the program and demonstrated continuous progress by finding ways to reduce wastewater discharges, hazardous materials, greenhouse gas emissions, and natural gas, electricity, and water use. The total annual cost savings and increased revenue for the participating companies between October 2001 and October 2002 is projected to be \$381,980. The simple payback for all dollars spent versus projected returns is 1.2 years. A second-stage

pilot is planned for 2002–2003 and will take advantage of lessons learned during the first stage.

In Fall 2001, Industry Canada launched a tool entitled "Three Steps to Eco-efficiency." This tool helps small and medium-sized manufacturers to develop an eco-efficiency program through checklists on self-assessment, strategies, and cost-benefit analysis. Efforts are now under way to make the tool available in multiple formats: online, downloadable, and hard copy. The tool accounts for 10–15% of the total 800 visits monthly to Industry Canada's eco-efficiency website.

Research and Development

Natural Resources Canada coordinated the Canadian Lightweight Materials Research Initiative (CLiMRI), a government–industry partnership aimed at producing advanced, lightweight components for vehicles. CLiMRI's technical focus is weight reduction in ground transportation vehicles, with the goal of reducing emissions through improved vehicle efficiency. Processes adopted by industry include heat treatment procedures for aluminum casting that greatly reduce energy consumption. During 2001–2002, Natural Resources Canada held two seminars to share the work of the past year with industry and the research community.

Technology Partnerships Canada is a technology investment fund operating out of Industry Canada that makes high-risk repayable investments in research, development, and innovation. In 2001–2002, the fund invested \$57.26 million in seven projects with potential pollution prevention benefits. Project areas funded include improving energy efficiency in water treatment technology, reducing emissions of small gasoline engines, engine fuel control systems allowing the replacement of gasoline with less polluting fuels, fuel cells, and natural gas refuelling infrastructure.



Section 2C: Progress with the Private Sector (continued)

The Ontario Sustainable Aquaculture Working Group includes Environment Canada, Fisheries and Oceans Canada, the University of Guelph, and others. The group is developing and testing approaches for maintaining acceptable water quality and fish habitat near aquaculture operations. Low biochemical oxygen demand feed formulations for rainbow trout are undergoing fish growth trials at the University of Guelph. Other projects include successful implementation of two cage culture fish manure collectors and evaluation of "aquaponics" for effluent management and reconditioning in intensive tilapia culture to remove nutrients so that the water can be reused in the farm. []

Research and Technology Transfer in the Floriculture Industry is a University of Guelph, Ontario, research project in its seventh year. The project's purpose is to study nutrient recycling techniques without inhibiting plant growth and provide technology transfer to the agriculture and agri-food sector. A survey of 74 Ontario greenhouses assessed the extent of technology transfer based on the research conducted. Facilities with water recirculating systems reported a decrease of 81% in water use and 87% in fertilizer use compared with non-recirculating systems. As well, 53% of growers reported an increase or no change in crop quality and yield after switching to a recirculating system. With more experience and research, the case for recirculating systems will be more compelling to growers. Environment Canada provided partial project funding as well as guidance and follow-up on progress and site visit assistance. For more information, visit <http://www.uoguelph.ca/hortsci/recirc/>. []

The Microwave-Assisted Processes (MAP) are a family of clean processing technologies developed and patented by Environment Canada's Environmental Technology Advancement Directorate. MAP technologies focus on using microwaves to enhance or accelerate biological, chemical, or physical processes. Economic and environmental benefits accrue from dramatically reduced energy and chemical consumption and improved performance in terms of product yield and quality and reduced wastes. As an example of the ability of MAP to contribute to pollution prevention, the U.S. Environmental Protection Agency has approved the use of a MAP method as a Standard Reference for the preparation of environmental analytical samples. This method is also an approved *Canadian Environmental Protection Act, 1999* regulatory Reference Method. The introduction of these methods to laboratories is significant. It is estimated that about 100 million litres of organic solvents are used in organic analytical laboratories annually, but the MAP method requires about 90% less solvent. Toxic solvents such as dichloromethane, currently used in conventional methods, can be avoided completely, greatly reducing human exposure. In most cases, energy requirements are also reduced by about 99%, producing a significant reduction in greenhouse gas emissions. []

Industry Canada is promoting, contributing to, and participating in the development and implementation of the Innovation Roadmap on Sustainable Fuels and Chemicals from Biomass. The Innovation Roadmap will contribute to Canada's climate change objectives by developing opportunities for bioproducts alternatives and bioprocesses, which will contribute to reducing energy and emissions, including greenhouse gases. With this focus, a feasible target for total greenhouse gas reduction is approximately 23 tonnes per year of carbon dioxide equivalent by 2015. []



MAP technologies focus on using microwaves to enhance or accelerate biological, chemical or physical processes, which reduce energy and chemical consumption and improve performance

Section 2C: Progress with the Private Sector (continued)

UPCOMING PROJECTS

Western Economic Diversification Canada, in collaboration with Western Canada Business Service Network, developed a Sustainable Development Online Learning Tool. Intended program launch is in 2002–2003. Tool modules educate participants on concepts and practical approaches to sustainable development, including aspects of pollution prevention. The online training tool is hosted on Western Economic Diversification Canada's Extranet.

The Collision Industry Action Group (CIAG) is developing a national Internet-based training program for auto body repair shops. The Project STAR environmental training course will be accessible to approximately 2800 facilities in Ontario. The program's objectives are to develop understanding of the characteristics, sources, hazards, and impacts of waste, and the need to reduce wastes (particularly volatile organic compounds); and develop an understanding of pollution prevention objectives and financial benefits achievable from going beyond compliance. The project is an industry–government cooperative partnership involving Environment Canada, the Ontario Ministry of the Environment, CIAG, Canadian Automotive Institute, and members of the Canadian Paint Coatings Association. For more information, visit <http://www.ciia.com>.

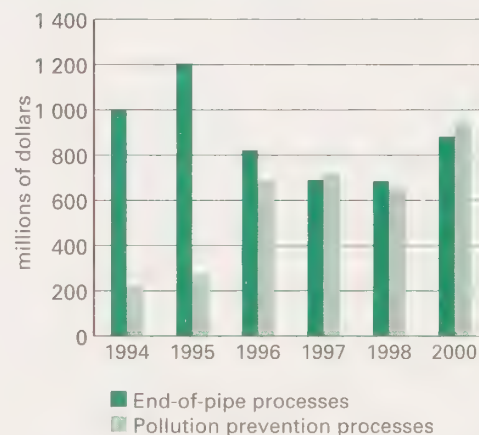
The House of Commons Printing Services are expected to be EcoLogo certified through the Environmental Choice Program in 2002–2003. Printing Services print virtually all House of Commons and Senate materials. When certified, this will be the first Federal Green Printing Operation. The Environmental Choice Program guidelines for printing services look at limiting the emissions of volatile organic compounds, the reduction of materials going to landfill sites, and resource conservation. Environment Canada has provided project direction and technical advice.

The Labour Environmental Alliance Society's (LEAS) "Cleaners, Toxins and the Ecosystem" project developed a pocketbook and workshops explaining how to identify toxic substances contained in cleaning products and how to find alternative cleaning products. Environment Canada—Pacific and Yukon Region is a key funding partner and is working with the LEAS to deliver more workshops. Up to 10 workshops will be delivered in 2002–2003, at sites that include "public" workplaces such as schools, recreation centres, and hospitals; "private" workplaces such as long-term care facilities, day cares, and commercial food production facilities; school boards, municipal governments, and large institutions (universities, colleges); and cleaning suppliers/building contractors.

Environment Canada has provided funding to support establishment of an online database of "green" Ontario dry cleaners. The database will be hosted on the Canadian Centre for Pollution Prevention website and will profile the environmental activities of dry cleaners. Consumers will be able to access the list and make an educated choice on dry-cleaning services. For more information, visit <http://www.c2p2online.com>.

Statistics Canada, through a "Survey of Environmental Protection Expenditures," collects data on the expenditures and practices made by primary and manufacturing industries, electric power and gas distribution facilities, as well as pipeline transportation. Since 1994, the first survey year, businesses have steadily increased their investments in pollution prevention processes. In 2000, companies spent over \$940 million on pollution prevention equipment—that is, processes that eliminate or prevent the creation of pollution in the production cycle—up over 45% from 1998. In 2000, 58% of survey respondents indicated that they use an environmental management system, while 35% indicated that they participate in environmental voluntary agreements.

CAPITAL EXPENDITURE ON POLLUTION PREVENTION AND CONTROL



Statistics Canada, **Environment Accounts and Statistics Division, Statistics Canada, Survey of Environmental Protection Expenditures, 2000, Catalogue #: 11-001-XIE (11-001-XIF for French)**. Statistics Canada, *The Daily*, December 5, 2002

Section 2C: Progress with the Private Sector (continued)

TRACKING PROGRESS AGAINST POLLUTION PREVENTION—A FEDERAL STRATEGY FOR ACTION¹

Goal: Achieve a climate in which pollution prevention becomes a major consideration in private sector activities

Actions:	Status:	Examples:
1. Develop innovative pollution prevention programs.	Ongoing	<ul style="list-style-type: none"> • Camp Green, Canada! • CleanPrint Canada • Fleet\$mart • Commercial Buildings Incentive Program
2. Promote pollution prevention through refocused research, development, and demonstration initiatives.	Ongoing	<ul style="list-style-type: none"> • Wet Clean Technology • Canadian Lightweight Materials Research Initiative • Sustainable Fuels and Chemicals from Biomass
3. Promote the adoption of sustainable production in industrial and manufacturing processes.	Ongoing	<ul style="list-style-type: none"> • EcoSmart Concrete • Canadian Vehicle Manufacturing Pollution Prevention Project • Metal Finishing Industry Project • Extended Producer Responsibility in the waste associated with information technology
4. Implement economic instruments that will result in pollution prevention.	Developmental stages	<ul style="list-style-type: none"> • Provisions in new Environmental Performance Agreements and the successor program to Accelerated Reduction and Elimination of Toxics (ARET)
5. Help small and medium-sized enterprises improve their environmental performance.	Ongoing	<ul style="list-style-type: none"> • EnviroClub™ • Toronto Sustainability Program • EcoDesign Innovation Pilot Program

¹ This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention with the private sector.

Progress with the Canadian Public

Federal pollution prevention strategy goal: Provide access to the information and tools necessary to implement pollution prevention practices.

Citizen-Driven Activities

The EcoAction Community Funding Program is an Environment Canada program providing financial support to community groups for projects that will achieve results in the following areas: Clean Air and Climate Change, Clean Water, and Nature. To view stories of community groups in action, visit <http://www.ec.gc.ca/ecoaction>. Some examples of 2001–2002 projects that received EcoAction funding are provided below:



As an alternative to road expansion in the Halifax Regional Municipality, TRAX aims to reduce single-occupancy vehicle use and promote the increase of investments in sustainable transportation alternatives.

- TRAX is an ongoing project of the Ecology Action Centre in Halifax. As an alternative to road expansion in the Halifax Regional Municipality (HRM), TRAX is intended to reduce single-occupancy vehicle use and promote the increase of investments in sustainable transportation alternatives. To date, it has initiated a trip reduction program in six workplaces in HRM, with seven others considering participation. Other activities included a Bike to Work Week, a Commuter Challenge, and a public forum on a bike policy for HRM. TRAX efforts will contribute significantly to the local government's commitment to a 20% reduction in greenhouse gas emissions.
- Atlantic Coastal Action Plan (ACAP) Cape Breton implemented a project to improve the environmental performance of operations at the Nova Scotia Community College's campus in Sydney. With help from the students' association, ACAP drafted a green purchasing policy for the college, conducted a water audit and chemical use survey, and made recommendations for chemical use reduction. In addition, there are plans to collect and recycle a number of hazardous and solid waste streams, conserve 1500 cubic metres of water, reduce chemical waste by 70 litres, make recommendations for energy efficiency, and publish a blueprint manual for greening the Nova Scotia Community College's other facilities.
- The Roman Catholic Diocese of Charlottetown, Prince Edward Island, has initiated an environmental review of its parish buildings. The Enviro Church Program is expected to reduce energy use, water consumption, and wastewater production by 10% and hazardous household and chemical lawn products use by 20%. Also, educational materials will be supplied to parishioners to increase their awareness of the initiatives undertaken by their local church and to encourage similar efficiency in their own homes.
- Approximately 66 000 homes in Newfoundland and Labrador heat with oil. Aging oil tanks are a problem: some oil spills cause environmental damage and result in expensive remediation. The Conservation Corps of Newfoundland & Labrador initiated a Home Oil Check program to address leak prevention and reduce greenhouse gas emissions. Over 300 homes will receive a Home Oil Check assessment, including a report and information on heating with oil, oil tank

Section 2D: Progress with the Canadian Public (continued)

regulations and inspection, and spills. Also, homeowners receive an "EnerGuide for Houses," a tool to promote action and to demonstrate energy (and financial) savings from recommended upgrades. To date, 52 homes from over 60 communities have received an assessment. Previous energy efficiency assessments indicated potential reductions of an average of 2 tonnes of carbon dioxide per home per year. []

- The Nova Scotia residential sector is responsible for 26% of provincial greenhouse gas emissions. In the Halifax Regional Municipality, Clean Nova Scotia initiated a project to conduct 400 home visits, including an energy assessment, water conservation measures, and climate change education. Participating homes receive a water conservation kit and information material for each component of the Green Home visit. The project should lead to an overall 5% reduction in energy and greenhouse gas production and up to an 8% decrease in water consumption. []
- There is growing public concern about the public health and environmental effects of pesticide use. In 1997, pesticide sales in Canada totalled over \$1.4 billion, 85% of which was for herbicides intended for use in lawns and gardens.³ The New Brunswick Lung Association addressed this issue by launching the Healthy Lawn Program. Ten individuals were trained in hosting home get-togethers to discuss pesticide-free, healthy lawn maintenance in a friendly setting. Eighteen events were held, with more planned as the program expands to the rest of New Brunswick. Results to date indicate that over 70% of the participants committed not to use pesticides on their lawns for cosmetic purposes. []

WHAT IS SUSTAINABLE CONSUMPTION?

Sustainable consumption has been defined as the "use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations."⁴

Environment Canada hosted the second meeting of the North American Sustainable Consumption Alliance Workgroup. The North American Sustainable Consumption Alliance is a strategic partnership of people and organizations that are working to promote more sustainable consumption patterns in Mexico, Canada, and the United States. One of the Alliance's goals is to facilitate the shaping of a common North American vision of sustainable consumption. Discussions are also under way to organize a third meeting in Mexico.

In response to the need for information on the environmental practices, behaviours, and concerns of Canadian individuals and households, Statistics Canada is planning to conduct the Household and Environment Survey in 2003. Statistics Canada has developed a framework based on sustainable consumption, examining Canadians' understanding and perceptions of environmental issues, role of individual consumptive behaviours and public participation in environmental activities, and, finally, actual environmental practices. The themes that will be covered by the survey include water consumption and conservation, waste management and recycling, transportation decisions, use of pesticides and fertilizers, purchase of "green" products, knowledge and understanding of environmental issues, and civic engagement. A more limited version of this survey was conducted in 1991 and 1994, and the results were published in the Statistics Canada report, "Households and the Environment" (Catalogue No. 11-526).

Public Awareness Campaigns

Pharmacists are working with Environment Canada to reduce mercury levels in the environment by safely collecting and disposing of unbroken mercury fever thermometers as part of a Mercury Fever Thermometer Take Back pilot project. London, Ottawa, and Thunder Bay residents were able to return unbroken mercury fever thermometers to participating retailers from February 15 to March 15, 2002. Over 100 pharmacies participated in the program, and 1400 thermometers were collected in total. The pilot project provided individuals with a safe disposal method for mercury fever thermometers and eliminated the risk of releasing mercury into the environment. The lessons learned will help determine the feasibility of initiating a national program. []

Environment Canada is providing financial support and technical advice to the Riversafe Car Wash Campaign. The campaign's purpose is to educate residents and community groups about the impact of unregulated non-point discharges from home and volunteer fundraising events at



London, Ottawa, and Thunder Bay residents were able to return unbroken thermometers from February 15 to March 15, 2002 as part of a Mercury Fever Thermometer Take Back pilot project.

carwashes/gas stations. In addition, Environment Canada is financially supporting the formation of a multi-stakeholder task force to examine the establishment of a carwash industry self-certification initiative. For more information, visit <http://www.riverside.org> []

The Environmental Damages Fund (EDF), administered by Environment Canada, is a repository for fines levied against those convicted of causing environmental damage. Through a partnership with the Atlantic EDF managers, a higher priority is placed on EDF fund proposals for projects that use pollution prevention approaches and practices where appropriate. []

3 Pesticides: Making the Right Choice for the Protection of Health and the Environment. Report of the Standing Committee on Environment and Sustainable Development, May 2000.

4 Symposium on Sustainable Consumption, Oslo, Norway, January 1994.

Section 2D: Progress with the Canadian Public (continued)

Atlantic Canada Opportunities Agency funded a series of short television vignettes profiling young entrepreneurs. The profiles introduce young people to the world of business by providing role models and offer practical steps to help them establish a viable business. One aspect they address is the issue of sustainable development and pollution prevention when running a business. The profiles aired on the CBC TV series "Street Cents" and on French CBC television.

As part of its Community Animation Project (CAP) Program, Health Canada's Ontario Region is working with the Nunavut government and non-governmental organizations to strengthen local health/environment networks, committees, groups, and projects. Networking links were increased between 65 health/environment groups and sectors. Results include support for healthy public policy on pesticide reduction workshops and education campaigns; and fundraising and intersectoral collaboration in support of well water protection workshops.

Access to Information

TerraChoice Environmental Services Inc., on behalf of Environment Canada, manages and delivers the Environmental Choice™ Program (ECP). The ECP is an eco-labelling program that helps individuals, corporations, and governments make informed purchasing decisions to reduce their environmental impacts. Over 3000 brand name products in approximately 136 product categories now bear ECP's EcoLogo, including products such as tires, cleaners, office equipment, electricity, and paints. For more information, visit <http://www.environmentalchoice.com>.

Natural Resources Canada's Auto\$mart information program promotes awareness among Canadian motorists of how important vehicle fuel efficiency, maintenance, and proper driving are in reducing emissions and benefiting the environment, as well as saving money. This year, the program provided information to 30 124 more new drivers through its Auto\$mart driver kits and other information sources.

The fifth annual Canadian Pollution Prevention Roundtable was held in St. John's, Newfoundland, in June 2001. The Roundtable is a recognized opportunity to strengthen partnerships and advance pollution prevention. Sessions included Corporate Sustainability, Health and Community Healthcare, Measuring and Reporting P2 Progress, North American Sustainable Consumption Network, Integrating P2 into Existing Management Systems, and the launch of a municipal pollution prevention workgroup. Over 100 participants representing business, consultants, universities, governments, labour, youth, and non-governmental organizations discussed pollution prevention issues and celebrated Canadian achievements. With funding support from Environment Canada, the Canadian Centre for Pollution Prevention, a non-profit organization, coordinates the Roundtable. For more information, visit <http://www.c2p2online.com> (click on Conferences & Training).

The Canadian Pollution Prevention Information Clearinghouse is an Internet tool that links Canadians to information on pollution prevention (P2). It explains P2, explores the benefits, and provides examples of common practices. This online database provides access to over 1300 P2 reference materials. The references cover more than 30 industrial sectors and service industries and contain information on community projects and how to incorporate P2 into daily life. The Canadian Pollution Prevention Success Stories website is a place to see examples of P2 in action. Providing incentive for Canadians to adopt similar practices, the success stories website currently recognizes 85 Canadian organizations, companies, and individuals who are making a difference in P2. Environment Canada is responsible for the upkeep and maintenance of these two sites, as well as the inclusion of additional information.

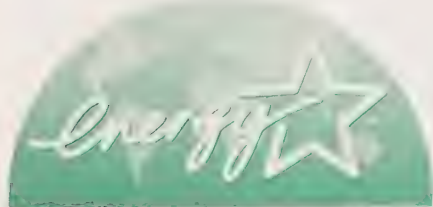
CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) ENVIRONMENTAL REGISTRY

The CEPA Environmental Registry is a comprehensive source of public information relating to activities under the *Canadian Environmental Protection Act, 1999* (CEPA 1999). In addition to providing up-to-date copies of current CEPA instruments, the primary objective of the Environmental Registry is to encourage and support public participation in environmental decision-making, by facilitating access to documents arising from the administration of the Act. To access the Registry, visit <http://www.ec.gc.ca/ceparegistry/>



Section 2D: Progress with the Canadian Public (continued)

In 2001, the Government of Canada introduced the Energy StarTM symbol as a way consumers could quickly identify the most energy efficient products in their class. The Energy Star symbol is backed up by technical specifications that identifies how a product qualifies for the energy efficiency mark and what efficiency level must be attained. The Energy StarTM high-efficiency specifications are administered by Natural Resources Canada's Equipment Program. NRCan endorses specifications for selected major electrical household appliances, heating and cooling products, office equipment, consumer electronics, some lighting and signage products, as well as selected commercial and industrial products. NRCan's Equipment Program also administers the Regulations under Canada's Energy Efficiency Act. The Regulations, originally introduced in 1995, identify minimum energy performance levels and test standards for over 32 energy-using consumer products in all market sectors. They are continually being updated to take into account changes in technology and in standards. For example, an amendment to the Regulations was passed in 2001 to introduce new energy efficiency levels and updated test standards for refrigerators, refrigerator freezers, and freezers. Subsequent amendments to the Regulations include upgrading the standard for room air conditioners, lighting ballasts, distribution transformers, and other residential and commercial space conditioning equipment. For more information on Energy Star, visit the web site at: <http://energystar.gc.ca>. For more information on Canada's Energy Efficiency Regulations, visit <http://oee.nrcan.gc.ca/regulations> [



The Youth Round Table on the Environment is an active, nonpartisan forum that brings together young Canadians of diverse regional, cultural, educational, and linguistic backgrounds to provide input on Environment Canada's programs and policies.

The EnerGuide for Houses Program encourages Canadians to improve the energy efficiency of their homes. Of the homeowners receiving the evaluation, 63% respond with some amount of work, including caulking/draft sealing, 49%; insulation, 42%; door and window replacement, 37%; and heating system replacement, 19%. By year-end 2001, average energy consumption of homes that undertook retrofits had improved by 17.6%. Greenhouse gas reduction since the program began is estimated at 30.8 kilotonnes. Natural Resources Canada provides national coordination, technical support, software tools, and training for the program. [

Addressing Climate Change

The Government of Canada Action Plan 2000 on Climate Change is a five-year program that will reduce greenhouse gas emissions by 65 megatonnes per year in key sectors of the economy. In November 2001, the Government of Canada announced details of 28 specific climate change initiatives to cut Canada's greenhouse gas emissions by more than 23.7 megatonnes by 2010. These practical, concrete measures, when fully implemented, are expected to take Canada about one-third of the way (or

65 megatonnes closer) to the targets agreed to during the 1997 Kyoto Protocol negotiations. For more information, visit <http://www.climatechange.gc.ca>. [

Engaging Youth

Started in 1997, the Youth Round Table on the Environment (YRTE) is an active, non-partisan forum of up to 18 youths that brings together young Canadians of diverse regional, cultural, educational, and linguistic backgrounds. During a one-year term, the group meets up to three times a year to provide input on Environment Canada's programs and policies and to advise on ways to make these programs more accessible to youth. In 2001–2002, the YRTE addressed themes including Environment and Health, the World Summit on Sustainable Development, Technology and the Environment, Conservation and Stewardship, Climate Change and Kyoto, and Water and Environmental Education. For more information, visit http://www.ec.gc.ca/youth/index_e.html. [

Section 2D: Progress with the Canadian Public (continued)

Environment Canada—Atlantic Region provided financial and technical support to the four Atlantic provincial organizing committees of the 2001 Canon Envirothon™. The Envirothon™ is North America's largest high school-level science fair. The 2001 event theme was non-point source pollution. Competing student teams received a one-hour briefing on topics such as non-point source pollution and pollution prevention alternatives.

Every four years, Scouts Canada organizes a 10-day Jamboree providing 12 000 youth aged 11 to 17, and staff from across Canada and beyond, with the experience of outdoor activities. The 2001 Canada Jamboree (CJ'01) was held at Cabot Provincial Park, Prince Edward Island. Environment Canada provided a range of environmental elements to the CJ'01 program. Pollution prevention principles and practices, such as Leave No Trace, were taught and used throughout the Jamboree, from site water treatment to beach hiking. Scouts learned, from role playing, the consequences of groundwater contamination and the means to prevent it.

Atlantic Canada Opportunities Agency funded a study of entrepreneurship among young Atlantic Canadians aged 15 to 29. The study sought opinions of young entrepreneurs and non-entrepreneurs throughout Atlantic Canada on a wide variety of business-related issues and included questions on the environment and sustainable development. Ninety-three per cent of entrepreneurs believe it is possible to operate a business without harming the environment.

The Computers for Schools program collects, repairs, and refurbishes donated surplus computers from government and private sector sources and distributes them free to schools. The program, managed by Industry Canada, has a total of 69 centres throughout Canada, where computers are cleaned, refurbished, and prepared for delivery, or recycled if unusable. In 2001–2002, over 73 000 refurbished computers were made available for reuse, with 360 000 reused since 1993. In addition, the program has diverted, through recycling, over 22 million kilograms of used equipment not suitable for donation through recycling. For more information, visit <http://www.schoolnet.ca/cfs-ope>.

POLLUTION PREVENTION OPPORTUNITY FACT SHEETS

Environment Canada created a series of fact sheets entitled *P2 & You* for households. The fact sheets feature useful tips on how to implement pollution prevention around the home, at work, at school, while driving, and while shopping. Below is a sample checklist of what households can do that will save energy and water and reduce the amount of waste created, while at the same time saving money.

Save energy

- ☐ Turn the temperature on your water heater down. Most homes do not need extremely hot water.
- ☐ Use the energy saver option or shortest cycle necessary on appliances.

Reduce waste

- ☐ Create and maintain your own compost pile, if feasible. This will produce your own fertilizer and reduce the amount of garbage from your home.
- ☐ Cardboard boxes and paper bags can be used to store things or when packing items for your next move.
- ☐ Plastic shopping bags can be reused on your next visit to the grocery store.

Save water

- ☐ Place a plastic bottle filled with water in your toilet tank to reduce water use in the toilet.
- ☐ Install water flow-reducing attachments for faucets and showerheads to reduce water use.

Be consumer wise

- ☐ Purchase products and services from companies that are environmentally conscious.
- ☐ Use safer alternatives to hazardous chemicals. For example, use insecticidal soaps instead of chemical sprays to get rid of insects on your plants at home.

For the complete set of fact sheets, visit <http://www.ec.gc.ca/nopp/docs/fact/en/index.cfm>

Section 2D: Progress with the Canadian Public (continued)

TRACKING PROGRESS AGAINST *POLLUTION PREVENTION—A FEDERAL STRATEGY FOR ACTION*¹

Goal: Provide access to the information and tools necessary to implement pollution prevention practices

Actions:	Status:	Examples:
1 Provide information that illustrates how pollution prevention fits into daily activities	Ongoing	<ul style="list-style-type: none">• Canadian Pollution Prevention Success Stories• EcoAction program• Canadian Centre for Pollution Prevention
2 Create a national pollution prevention clearing house	Complete	<ul style="list-style-type: none">• Canadian Pollution Prevention Information Clearinghouse
3 Encourage consumers to use their purchasing power to promote pollution prevention	Ongoing	<ul style="list-style-type: none">• AutoSmart Program• Environmental Choice Program• Energy Star program

¹ This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention with the Canadian public.

Progress with the International Community

Federal pollution prevention strategy goal: Participate in international pollution prevention initiatives.

International Agreements and Technology Transfer

Canada was the first country in the world to sign and ratify the Stockholm Convention on Persistent Organic Pollutants (POPs), which aims to ban or restrict the use of certain hazardous chemicals around the world. Even though Canada has banned or restricted their use, most POPs of concern are transported from foreign sources through the atmosphere into Canada, where they accumulate in the food chain. Because of atmospheric circulation, POPs travel great distances from their sources, posing significant risks to the health of Canadians. These risks are of particular concern to northern Aboriginal populations dependent on traditional foods. The Canadian International Development Agency provided \$20 million to the Canada POPs Fund, to help developing countries and countries with economies in transition to reduce or eliminate the release of POPs, including certain pesticides (e.g., DDT) and industrial chemicals (e.g., PCBs), and to ratify and implement the Convention. Now entering its second year, the Fund has a number of successful projects under way and will continue to provide support until 2005.

The Canadian International Development Agency (CIDA) manages the \$100 million Climate Change Development Fund on behalf of the Government of Canada. Through this fund, CIDA promotes, facilitates, and/or finances the transfer of environmentally sound technologies that address the causes and effects of climate change in developing countries, while at the same time contributing to sustainable development and poverty reduction. The four programming areas are emission reductions, carbon sequestration, adaptation to adverse impacts of climate change, and core capacity-building. These initiatives aim at building capacity in



Technology Early Action Measures provide financial support for international demonstrations of climate change technologies.

developing countries and can cover know-how, equipment, and products. All projects have been selected and are entering the implementation phase. Current projects include providing solar energy to rural populations in China and providing technical assistance to the brick-making factories in Egypt to reduce greenhouse gases and other air pollutant emissions.

As part of the Climate Change Action Fund, Technology Early Action Measures (TEAM) provides financial support for international demonstrations of climate change technologies. TEAM investments accelerate the demonstration and deployment of new greenhouse gas reduction technologies to other countries, particularly developing nations. The Climate Change Office of Industry Canada contributed salary dollars to TEAM administration and participated in the interdepartmental review of prospective projects.

To establish the best available practices in life cycle assessment (LCA), the United Nations Environment Programme and the Society of Environmental Toxicology and Chemistry hosted an international workshop on LCA. This workshop was also sponsored by Natural Resources Canada, Asia-Pacific Economic Cooperation, and the International Council of Metals. LCA can be used to identify

Section 2E: Progress with the International Community (continued)

opportunities for pollution prevention by comparing the potential environmental impact of the current situation with an alternative. Various models used to calculate the potential impacts of metal production and emissions were discussed in order to identify gaps and suggest improvements. Natural Resources Canada provided scientific direction and organizational logistics support on this project. [REDACTED]

Through partnerships with the Canadian International Development Agency (CIDA), Natural Resources Canada (NRCan) promotes environmental stewardship in minerals and metals mining abroad. During 2001–2002, NRCan managed contracts on behalf of CIDA in Guyana, Zambia, and Brazil. The objective of these projects is to transfer Canadian technical expertise in environmental management related to mining in order to improve the capability of these countries' governments to manage their mining interests, thereby reducing the risks to human health or the environment. To date, the project has been very successful in developing excellent working relationships with the Zambian stakeholders. In Guyana, new technologies for maximizing mineral recovery in an environmentally responsible manner will be introduced through training and demonstration projects targeting primarily small and medium-sized mining ventures. In Brazil, the government and industry have started applying newly transferred expertise to rehabilitate mine sites across the country. [REDACTED]

Health Canada's Office of Sustainable Development has actively participated in international discussions involving the development of a Globally Harmonised System for Chemical Hazard Classification (GHS). The goal of the GHS is to provide a common international approach to defining and classifying chemicals, warning users of the dangers, which in turn makes the users more cautious about exposing themselves and discharging the chemicals of concern to the environment. It is expected that the system will be widely applied, and significant benefits to human health and the environment will result. [REDACTED]

The Pollution Prevention World Information Network is an online network designed to bring together pollution prevention roundtables and cleaner production networks to strengthen partnerships, encourage innovation, and take collective action. Designed to be a vital new resource for businesses and governments, the Internet-based network connects and serves as a virtual meeting place for pollution prevention roundtables, cleaner production networks, and other organizations committed to advancing pollution prevention and sustainability. It is an evolving network—a partnership between governments, the private sector, non-governmental organizations, and academics that links and supports the pollution prevention community while reaching out to new partners such as organizations dealing with energy efficiency, finance, and sustainable consumption. The initiative commits roundtables in the Americas, Asia-Pacific, Africa, Eastern and Central Europe, and China to creating a permanent network that encourages ideas and innovation—a true Roundtable of Roundtables. For more information, visit <http://www.p2win.org>

North, Central, and South America

The development of a North American Pollution Prevention Partnership (NAP3) under the auspices of the North American Commission for Environmental Cooperation has resulted in a formal North American Pollution Prevention Declaration, which was signed by the Canadian, American, and Mexican roundtables at the Canadian Pollution Prevention Roundtable in Quebec in April 2002. The partnership will continue to look for additional ways to align environmental policies, projects, and programs to advance pollution prevention and achieve better environmental results over the next three years. As part of NAP3, Environment Canada provided financial assistance to the Canadian Centre for Pollution Prevention (C2P2) to develop the Canadian contribution to the joint policy document and enabled Canadian participation in the NAP3 steering committee. Environment Canada's National Office of Pollution Prevention and C2P2 have partnered on many occasions to advance



At the Canadian Pollution Prevention Roundtable in Quebec 2002 a formal North American Pollution Prevention Declaration was signed by the Canadian, American and Mexican roundtables.

pollution prevention internationally. Projects such as the International Pollution Prevention Summit, exhibiting at the ninth meeting of the United Nations Commission on Sustainable Development, and presentations at the National Pollution Prevention Roundtable in the United States have helped forge Canada's leadership role in advancing pollution prevention in the international community. [REDACTED]

In January 2002, Canada was the Chair of the G-8 Summit in Kananaskis, Alberta. Based on experience gained and documented at the 1995 Halifax G-7 Summit by Environment Canada, six stewardship principles were adopted and integrated into the environmental management plans for the Kananaskis Summit. For more information, visit: <http://www.g8.gc.ca/kananaskis/envirosea-en.asp> [REDACTED]

Asia and Africa

The Canadian International Development Agency, in partnership with Resource Efficient Agriculture Production, an independent research and development organization, initiated the Southern Negros Sustainable Agriculture Demonstration Project in the main sugar-growing region of the Philippines. The project aims to actively rehabilitate the natural resource base of the region through the adoption of ecological farming practices. Through informal information-sharing and farmer-to-farmer training, farmers are encouraged to explore natural pest control methods to replace widely used synthetic pesticides. So far, 60% of farmers in five communities have used these methods, resulting in improved water and soil quality. Other

Section 2E: Progress with the International Community (continued)

CLEANER PRODUCTION

The China-Canada Cooperation Project in Cleaner Production was established by the Canadian International Development Agency in 1996. Cleaner production is defined as "the continuous application of a pollution prevention strategy to processes and products through continuous improvement of management practices and technologies in order to enhance efficiency of resource utilization, to eliminate pollution emissions and to reduce risks to human health and the environment."

The distinction between Cleaner Production and Pollution Prevention tends to be geographic—the term pollution prevention tends to be used in North America, while the term cleaner production is used in other parts of the world. For more information on the China-Canada Cooperation Project, visit <http://www.chinacp.com>.

benefits of the program include reductions in greenhouse gas emissions through minimized crop residue burning and decreased use of fossil-based energy inputs. For more information, visit http://www.ec.gc.ca/p2progress/2000-2001/en/sec2_5_3.cfm (case sensitive).

China has, with the support of the Canadian International Development Agency and Environment Canada's National Office of Pollution Prevention, translated into Mandarin and distributed throughout China several key Canadian documents on pollution prevention and pollution prevention planning. This project will ensure widespread sharing of Canadian pollution prevention approaches and practices within China, which should result in environmental gains for the global common.

Jiangsu Small and Medium-Sized Enterprises (SME) Applied Management and Environmental Project provides assistance in management and in environmental and business planning capacity to SMEs. This project also aims to enhance enterprises' awareness of the need for waste minimization, cleaner production, and more environmentally sound technology alternatives, through the use of demonstration/pilot projects and the training of local trainers. The Jiangsu provincial government and the Canadian International Development Agency sponsored this project through a \$5 million environment revolving fund. The project also supports sectoral linkages and information exchange between Canadian and Jiangsu industries (initially chemical and metal working).

From 2001 to 2006, the Canadian International Development Agency, in partnership with the International Development Research Centre, is conducting an Economy and Environment Program for Southeast Asia. The project aims to enhance the capacity of Southeast Asian researchers to carry out economic analysis of environmental problems and policies and inform policymakers and civil society. It also aims to devise effective measures for the reduction of pollution and resource depletion. The expected results include an increase in the capacity of national institutions and regional research networks, the improved design and implementation of policies affecting the environment, an increase in the capacity of researchers in Southeast Asia to understand and apply environmental economics, enhanced



Key Canadian documents on pollution prevention and pollution prevention planning have been translated into Mandarin and distributed throughout China to ensure widespread sharing of Canadian approaches and practices.

communication between researchers and policymakers, as well as an increase in regional collaboration and knowledge sharing.

The Canadian International Development Agency has been supporting for the last seven years a project that contributes to India's capacity to promote environmentally sustainable industrial development. The project has provided the Confederation of Indian Industry (CII), Indian government officials, and representatives from industry with the basic technical knowledge required to begin addressing a series of environmental issues. Moreover, it has served as a mechanism to engage industry and government in dialogue in these areas. The next five years of the project will be focused on further strengthening the capacity of CII to provide guidance to Indian industry on targeted environmental and social issues, increasing the capacity of industry to incorporate environmental and social issues in doing business, and contributing to policy development relative to the environmental performance of Indian industry.

Section 2E: Progress with the International Community (continued)

SHARING INFORMATION ON INDUSTRIAL CHEMICALS

In an effort to streamline the new substances notification and assessment schemes in Canada and the United States, Environment Canada has partnered with the U.S. Environmental Protection Agency and industry in both countries through the Four Corners Agreement, which was first piloted in 1996. This agreement involves the exchange of technical data and assessment information. During 2001–2002, 12 substances were submitted and reviewed under this program. The terms and conditions of the Four Corners Agreement will be examined in the near future to increase its benefits for all parties.

Canada chairs the Organisation for Economic Co-operation and Development's (OECD) Task Force of New Industrial Chemicals established in 1999–2000. Environment Canada and Health Canada, in association with the Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS), is part of a wider OECD effort aimed at learning from each other, enhancing information- and work-sharing, and harmonizing new chemical schemes. During 2001–2002, Canada and Australia continued their discussions on developing an arrangement between the two countries and started exchanging information to gain greater understanding of their respective New Chemicals programs.

Environment Canada, in cooperation with Health Canada, actively contributes as a member of the OECD Environmental Exposure Assessment Task Force (EEATF). Together, they are preparing two emission scenario documents (ESDs), to describe chemical uses and discharges at pulp and paper and textile mills. The ESDs will be included as part of the EEATF's effort to share available ESDs and other useful information and tools.

PREPARATIONS FOR THE WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT

The World Summit on Sustainable Development (WSSD), which took place in Johannesburg, South Africa, brought together people from around the world to focus global attention on actions to achieve sustainable development. To prepare the agenda for the Johannesburg Summit and build consensus for its outcome, a global Preparatory Committee held four meetings during 2001–2002. Many stakeholders participated in these preparatory meetings for Canada, including representatives from government, as well as civil society, indigenous peoples, youth, and business communities. Roundtable discussions across Canada produced an extraordinary consistency in identifying Canadian and international priorities for Johannesburg and the coming decade. Five key issues emerged as the highest priorities: poverty, consumption patterns in developed countries, clean water, renewable energies, and education/traditional knowledge.

Also, in preparing for the WSSD, the report "Progress Towards a Sustainable Development Strategy for the Government of Canada" was produced. This document provides an overview of federal government sustainable development initiatives, a synthesis of current departmental sustainable development strategies, and a vision and principles for moving forward. Coming out of Johannesburg, the intent is to prepare an overarching federal sustainable development strategy that will assist in implementing the outcomes of WSSD. For more information, visit <http://www.wssd-smdd.gc.ca>.

TRACKING PROGRESS AGAINST POLLUTION PREVENTION—A FEDERAL STRATEGY FOR ACTION¹

Goal: Participate in international pollution prevention initiatives

Actions:	Status:	Examples:
1. Stimulate a shift to pollution prevention in international organizations.	Ongoing	<ul style="list-style-type: none">• G-8 Summit• United Nations Environment Programme• Pollution Prevention World Information Network
2. Incorporate pollution prevention into international standards.	Ongoing	<ul style="list-style-type: none">• Canada–China cooperative project to share pollution prevention planning information
3. Advance pollution prevention through international protocols and agreements.	Ongoing	<ul style="list-style-type: none">• Canada–U.S. Air Quality Agreement• Kyoto Protocol• North American Pollution Prevention Partnership• Persistent Organic Pollutants agreement

¹ This table summarizes the linkages to programs and initiatives undertaken in pollution prevention with the federal government's action plan on pollution prevention with the international community.

Trends and Future Opportunities

Canada continues with its commitment to place pollution prevention in the mainstream of daily decision-making.

The 1992 Rio Earth Summit recognized the significance of pollution prevention to sustainable development. The Rio Declaration of Environment and Development says that "states should reduce and eliminate unsustainable patterns of production and consumption...."⁵ It also mentions that "states should...discourage or prevent the relocation and transfer...of any activity and substance that cause severe environmental degradation or are found to be harmful to human health."⁶ Ten years have passed since Rio, and the federal Pollution Prevention Strategy resides as the foundation for promoting the use of processes, practices, materials, products, substances, and energy that avoid or minimize the creation of pollutants and waste.

This report, *Progress in Pollution Prevention 2001–2002*, demonstrates the Government of Canada's commitment to "institutionalize pollution prevention across all federal government activities," as stated in *Pollution Prevention—A Federal Strategy for Action*.

Canada has a long history of ensuring the protection of the environment and human health. The *Canadian Environmental Protection Act, 1999* encompasses pollution prevention and authorizes the federal Minister of Environment to require pollution prevention planning with respect to various substances designated as "toxic."

Working partnerships between federal departments ensure a more collaborative approach to integrating pollution prevention into policies, programs, and tools. Collectively, the Pollution Prevention Coordinating Committee has succeeded in significantly enhancing awareness over the years. Pollution prevention is a continuing agenda item for many senior government officials. To advance this work and profile successes, all federal departments are encouraged to record their pollution prevention efforts during the year for inclusion in upcoming annual progress reports.

Having developed consensus and commitment to a coordinated approach, federal departments will continue to demonstrate leadership in developing and setting best practices as well as specific performance measures. A future focus will be on sharing more fully the lessons learned from this process among all federal departments. Strengthening environmental baseline data and developing practical means to report progress and measurable environmental results will be ongoing priorities.

Much work has gone into building the range of public-private challenge programs that address issues such as energy efficiency, smog, toxic emissions, and greenhouse gas emissions. Both public and private sectors have learned from these programs, and various federal departments are working together to improve or develop successor programs that will continue to encourage pollution prevention and significantly reduce the environmental impact of a wider range of business activities in Canada.

Local-level partnerships may be particularly effective ways of reaching small and medium-sized enterprises (SMEs). Many SMEs do not have the resources readily available for investment in pollution prevention projects and can be difficult to reach, mobilize, or engage in environmental activities. There is also a renewed focus to help municipalities identify opportunities and implement pollution prevention.

Work will move forward on the development of emission reduction strategies to meet Canada-wide standards for air quality. Some jurisdictions have also chosen to consult further with industry, municipal, environmental, health, and Aboriginal groups on the development and implementation of these standards for substances such as mercury, benzene, and dioxins and furans.

Internationally, one of the most important outcomes from the International Pollution

5 Report of the United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, June 1992. Annex I, Principle 8.

6 Report of the United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, June 1992. Annex I, Principle 14.

Section 3: Trends and Future Opportunities (continued)

Prevention Summit in Montreal was the creation of the Pollution Prevention World Information Network. This network will provide a virtual meeting place for linking pollution prevention practitioners worldwide.

Access to information, tools, and funding will remain essential to encourage the abilities of individuals and communities to make better informed decisions that will protect the environment.

The pollution prevention successes achieved in 2001–2002 leave the Government of Canada well positioned to address environmental issues in an

innovative and effective way—giving Canada a competitive edge in the industries of the future.

The Pollution Prevention Coordinating Committee encourages all Canadians to identify and pursue opportunities for pollution prevention. Federal departments can facilitate and coordinate partnerships with businesses, environmental groups, scientists, Aboriginal communities, other governments, and individual citizens. By continuing to work together towards the goal of preventing pollution at the source, Canadians will protect the environment and human health and secure a sustainable economy for generations to come.”

On the Internet, view this report at <http://www.ec.gc.ca/p2progress>.

WORKING TOWARDS RESULTS: POLLUTION PREVENTION—A FEDERAL STRATEGY FOR ACTION

Target Sector	Strategy Goal	Trends and Future Opportunities
Federal government	Institutionalize pollution prevention across all federal government activities.	<ul style="list-style-type: none">• Trend: Strengthened partnerships between federal departments and greater emphasis on integrating a pollution prevention approach within policies, programs, and tools.• Future Opportunity: Further expand federal department participation in upcoming Progress in Pollution Prevention Reports and ensuring all projects are identified.
Other governments	Foster a national pollution prevention effort.	<ul style="list-style-type: none">• Trend: Developing Canada-wide Standards.• Future Opportunity: Assisting municipalities in the identification and implementation of pollution prevention approaches.
Private sector	Achieve a climate in which pollution prevention becomes a major consideration in private sector activities.	<ul style="list-style-type: none">• Trend: Continued commitment to public-private pollutant reduction challenge programs.• Future Opportunity: Improving the environmental performance of small and medium-sized enterprises, and more emphasis on product-focused policies.
Canadian public	Provide access to the information and tools necessary to implement pollution prevention practices.	<ul style="list-style-type: none">• Trend: Increased provision of pollution prevention information and successes.• Future Opportunity: Enhancing the consumer's ability to make sustainable consumption choices.
International community	Participate in international pollution prevention initiatives.	<ul style="list-style-type: none">• Trend: Sharing information on pollution prevention activities.• Future Opportunity: Building the capacity of developing countries to “leapfrog” to best practices.

To view Pollution Prevention—
A Federal Strategy for Action, visit
<http://www.ec.gc.ca/pollution/strategy>.

Appendix I:

Pollution Prevention Coordinating Committee Membership List (2001–2002)

ENVIRONMENT CANADA

National Office of Pollution Prevention

John de Gonzague (Chairperson)

Lynne Robinson-Lewis (alternate Chairperson)

Kathi De (Coordinator)

Environmental Technology

Advancement Directorate

Patricia Mitchell / Adrian Steenkamer

Regions

Rodger Albright – Atlantic Region

Thanh Thao Pham / Lucie Desforges –
Quebec Region

Brad Cumming / Ron Nobes – Ontario Region

David Noseworthy / Cheryl Baraniecki –
Prairie & Northern Region

Jeff Taylor – Pacific & Yukon Region

Interdepartmental Network on Sustainable Development Strategies (INSDS)

Craig Ferguson

Federal Committee on Environmental Management Services

Richard Arseneault

NATURAL RESOURCES CANADA

Richard Arseneault / Chris Callaghan

INDUSTRY CANADA

Environmental Affairs Branch

Adam Moser / Saeed Khan

NATIONAL DEFENCE

Directorate Environmental Protection

Holmer Berthiaume / Sean Baptiste

CANADIAN INTERNATIONAL DEVELOPMENT AGENCY

Environmental Policies and Multilateral Environmental Agreements Division

Roxanne Robert

FISHERIES AND OCEANS CANADA

Corporate Services – Office of Environmental Coordination

Francine Richard

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

Environmental Services

Sarah Byers / Shirley Shea

TRANSPORT CANADA

Environmental Affairs AHEB

Alec Simpson / Saleem Sattar / Jessica Smith

DEPARTMENT OF FOREIGN AFFAIRS AND INTERNATIONAL TRADE

Environmental Services

Jaye Shuttleworth / Kelly Thom

AGRICULTURE AND AGRI-FOOD CANADA

Corporate Services Branch – Asset Management and Capital Planning Directorate – Engineering Services

Pierre Laplante

HEALTH CANADA

Environmental Management Systems Division

John Horricks / Karen Prince

Members can be reached through the
Government of Canada Employees Directory at
<http://direct.srv.gc.ca/cgi-bin/direct500/BE>

Appendix II:

Federal Department and Agency Contributors to the 2001–2002 Progress in Pollution Prevention Report

Environment Canada
Agriculture and Agri-Food Canada
Atlantic Canada Opportunities Agency
Canadian Food Inspection Agency
Canadian International Development Agency
Communication Research Centre Canada (*first year reporting*)
Economic Development Canada
Fisheries and Oceans Canada
Foreign Affairs and International Trade
Health Canada
Human Resources Development Canada
Indian and Northern Affairs Canada
Industry Canada
Justice Canada
National Defence
Natural Resources Canada
Public Works and Government Services Canada
Statistics Canada
Transport Canada
Western Economic Diversification Canada

*On the Internet, view this report at
<http://www.ec.gc.ca/p2progress>.*

Acknowledgements

Steering Committee leading report preparation

Lynne Robinson-Lewis, Chair, Environment Canada

Michelle Gatt, Environment Canada

Pierre Laplante, Agriculture and Agri-Food Canada

Debbie Wallace, Environment Canada

Karen Prince, Health Canada

Sean Baptiste, National Defence

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Notes:



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PROGRESS

IN POLLUTION PREVENTION

2002-2003

8th Annual Report



Canada

Progress in Pollution Prevention 2002-2003: Annual Report of the Pollution Prevention Coordinating Committee

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PROGRESS

IN POLLUTION PREVENTION
2002-2003



Canada

THE FEDERAL
GOVERNMENT
CONTINUES WITH
ITS COMMITMENT
TO INCORPORATE
POLLUTION
PREVENTION
PRINCIPLES AND
PRACTICES INTO
DECISIONS MADE
THROUGHOUT
CANADIAN SOCIETY.

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Executive Summary

Progress in Pollution Prevention 2002–2003 showcases the federal government's achievements in incorporating pollution prevention into its own activities and those of its partners. This is the eighth annual report prepared by Environment Canada with the support and contribution of 25 other federal government departments and agencies. The report focuses on the progress made between April 1, 2002, and March 31, 2003, against the goals stated in the Federal Pollution Prevention Strategy and Action Plan and demonstrates the federal government's leadership in and commitment to pollution prevention.

Pollution Prevention—A Federal Strategy for Action sets priorities for action based on five target sectors: federal departments and agencies, other orders of government, the private sector, individual Canadians and the international community. By directing efforts towards preventing pollution instead of managing pollution after it has been created, the federal strategy works towards sustainable development.

Changes to the Format of the Report

This year's report has been designed to clearly show the importance of measuring progress in pollution prevention. The report identifies the learning opportunities that exist in addressing the challenges associated with varying data collection techniques, using common means of measurement and measuring a change in behaviour. For instance, *Progress in Pollution Prevention 2002–2003* features a new subsection within Section 1, Measuring Progress in Pollution Prevention, which highlights the efforts of government departments to address the challenges associated with pollution prevention measurement. The report also includes a table on transferable pollution prevention initiatives to encourage all government departments to seize pollution prevention opportunities within their own operations. In addition, there has been greater emphasis placed on featuring lessons

learned, so that government departments can learn from each other's experiences. There are new subsections on Sustainable Transportation Choices and Event Planning in Section 2. Also, within Section 4, a new subsection on Labour has been added, and Forestry and Wood Products has been added to the subsection on Sector-Specific Initiatives. In physical appearance, this year's report has undergone significant changes in the design of both the cover and the layout.

Progress within the Federal Government

Implementing the *Canadian Environmental Protection Act, 1999* requirements for managing risks to the environment and human health associated with toxic substances remained a key focus. Proposed pollution prevention planning notices were published for two toxic substances, and consultations continued on notices for other substances. Key achievements on the regulatory side included regulations that will reduce the use of tetrachloroethylene in the dry cleaning sector by 70% by the year 2005. As well, regulations were introduced to address the solvent degreasing sector, targeting reductions in the use of trichloroethylene and tetrachloroethylene. In addition, new regulations were promulgated under the *Fisheries Act*, whereby world-class standards will be implemented throughout Canada for the mining sector. Proposed regulations were also developed targeting benzene, acetaldehyde, acrolein and 1,3-butadiene. In 2002–2003, the Canadian Council of Ministers of the Environment (CCME) endorsed Canada-wide Standards for Dioxins and Furans for Steel Manufacturing Electric Arc Furnaces and for Iron Sintering Plants. In addition, precursors to PM (particulate matter) and ozone and its precursors, were added to the list of toxic substances in 2003, providing the federal government with the tools necessary to implement its commitment under the CCME Canada-wide Standards.

Federal departments demonstrated leadership by integrating pollution prevention in the operations of their own facilities. Prevention-based measures were taken in the following areas: departmental policy integration, waste reduction, energy efficiency/water conservation, operations/facility management, vehicle fleet management, procurement, training and awareness, sustainable transportation choices, and event planning. The departments and agencies that participate in the Sustainable Development in Government Operations initiative (those that prepare Sustainable Development Strategies) continued to collaborate in efforts to green government operations and in reporting the results of these efforts.

Progress with Other Governments

The development of regional or Canada-wide strategies for the management of pollutants and toxic substances continues to be relevant and a high priority through the Canadian Council of Ministers of the Environment (CCME).

The CCME continues to give national recognition to companies and organizations showing innovation and leadership in P2. The 2002 CCME P2 Awards were presented to Aurum Experience Ltd. of Rocky Mountain House, Alberta; Informco, Inc. of Scarborough, Ontario; Novopharm Ltd. of Toronto, Ontario; The City of Toronto Works & Emergency Services Department, Water & Wastewater Services Division, Industrial Waste & Storm Water Quality Unit, of Toronto, Ontario; the Labour Environmental Alliance Society of British Columbia; the Mountain Equipment Co-op facility in Winnipeg, Manitoba; and, Alberta-Pacific Industries Inc. of Boyle, Alberta.

Municipal wastewater is an ongoing focus for the federal and provincial governments. Other areas of note that demonstrate the effectiveness of locally based action

include reduction of vehicle idling and residential pesticide use, promotion of pollution prevention benefits to small and medium-sized enterprises and improved community energy management. Regional initiatives continue to show success in ecosystem protection and restoration and in developing sustainable communities. Key partnerships were made with Aboriginal communities to help Canadians reduce pollutants and improve health.

Progress with the Private Sector

Federal departments are involved in effective initiatives and programs in sectors such as agriculture and food, building design, forestry and wood products, printing and graphics, tourism and transportation. Providing resources for the delivery of demonstration projects, guidance materials and training programs further advances the adoption of the preventative approach.

Successful voluntary agreements and programs continue to be of particular importance. There is an ongoing focus on small to medium-sized enterprises, especially their need for information, both general and sector specific, on pollution prevention and other programs, resources and funding across Canada.

In keeping with CCME's goal of cost-effective actions to minimize releases of mercury and its compounds, a Canada-wide Standard for reducing environmental releases of dental amalgam has been developed. This Canada-wide Standard seeks to significantly improve the capture of amalgam wastes through best management practices.

Progress with the Canadian Public

Community-based action involving Canadians is an effective way to address issues such as water conservation, proper sewage disposal, air pollution, pesticide use and pollution prevention awareness. The Canadian Pollution Prevention Information Clearinghouse and Canadian Pollution Prevention Success Stories websites continue to provide Canadians with access to high-quality and reliable information resources on pollution prevention.

Canadians are increasingly applying sustainable transportation thinking in their daily lives. The Commuter Options Strategy and initiatives that encourage the use of public transit and discourage vehicle idling are building momentum.

Progress with the International Community

Canada has continued to implement and support activities to reduce or prevent pollution in different regions around the world.

There was ongoing fulfilment by Canada of obligations under the Stockholm Convention on Persistent Organic Pollutants through the provision of new and increased resources to assist, encourage and equip developing countries and countries with economies in transition to build their own capacity to reduce or eliminate releases of these pollutants.

Canada continues to promote, facilitate and/or finance the transfer of environmentally sound technologies that address the causes and effects of climate change in developing countries, while at the same time contributing to sustainable development and poverty reduction, through projects in places throughout Asia, South America and Africa.

In North America, work is under way, through the Commission of Environmental Cooperation, to reduce the exposure of North American ecosystems to mercury through the prevention and reduction of releases of mercury to the environment.

Trends and Future Opportunities

For the past eight years, the federal Pollution Prevention Strategy has been the foundation for promoting the use of processes, practices, materials, products, substances and energy that avoid or minimize the creation of pollutants and waste. The number of departments and agencies reporting pollution prevention activities has increased over the past eight years from six in the first annual report to a total of 26 for 2002–2003.

The pollution prevention successes and lessons learned in 2002–2003 establish the Government of Canada in a stronger position, able to identify future opportunities to promote pollution prevention as the preferred method for protecting the environment and improving economic competitiveness.

The Value of Reporting

Progress in Pollution Prevention 2002–2003 demonstrates the collective commitment on the part of federal departments and agencies to implement and improve upon pollution prevention techniques and processes within their own operations and as a means to engage external stakeholders. It also demonstrates that pollution prevention techniques and processes are evolving into the mainstream of daily decision-making locally, nationally and globally.

The Pollution Prevention Framework

The legislation and policies that form the federal government's commitment to protect human health and the environment establish a strong pollution prevention framework.

Pollution Prevention and its Linkages with Other Environmental Concepts

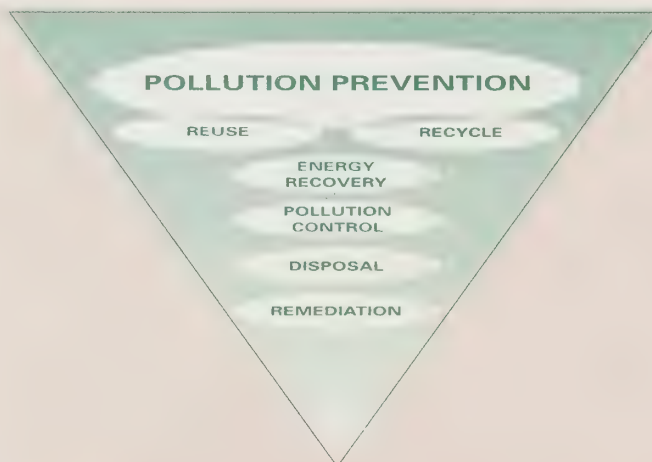
The federal government defines pollution prevention (P2) as "the use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste, and reduce overall risk to human health or the environment."¹ The goal of P2 is to eliminate the causes of pollution rather than be required to manage the waste after it has been generated. P2 involves continuous improvement through design, technical, operational and behavioural changes. It also encourages transformations that frequently lead to lower production costs, increased efficiencies and more effective protection of the environment.

P2 practices and techniques focus on such areas as substances of concern, efficient use and conservation of natural resources, reuse and recycling on site, materials and feedstock substitution, operating efficiencies, training, procurement techniques, product design, process changes, product reformulation, equipment modifications and clean production.

P2:

- minimizes or avoids the creation of pollutants;
- prevents the transfer of pollutants from one medium to another;
- accelerates the reduction and/or elimination of pollutants;
- minimizes health risks;
- promotes the development of source reduction technologies;
- uses energy, materials and resources more efficiently;
- reduces the need for costly enforcement;
- limits future liability with greater certainty;
- recognizes that waste is a cost that can be reduced;
- avoids costly cleanup in the future;
- promotes a more competitive economy; and
- fosters the principles of sustainable development.

THE ENVIRONMENTAL PROTECTION HIERARCHY



Moving up the hierarchy is a step in the P2 direction.

The Connections between Sustainability, Pollution Prevention and Environmental Management Systems

P2 is the preferred environmental approach for attaining sustainability. It stands at the top of the environmental protection hierarchy as the environmental management tool of choice, so that, whenever feasible, pollution or waste should be prevented or reduced at the source. Reducing material, energy and water usage through improved efficiency is also considered P2. An environmental management system (EMS) is a systematic way of applying the P2 approach. An EMS can be designed to address only environmental compliance and not P2. However, many leading organizations are building P2 goals into their EMSs, so that continuous environmental improvement becomes an organizational priority. Some organizations are even trying to build sustainability into their EMSs. Sustainability paradigms such as Natural Step are used to evaluate impacts and action plans to determine if the organization is moving towards sustainability.

At a Glance Interrelationships

Attribute	Sustainability	Pollution Prevention	Environmental Management Systems
Definition	Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. ¹	The use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste, and reduce overall risk to human health or the environment. ²	A framework developed by an organization to help improve its environmental performance by taking environmental considerations into account when making decisions and managing risks. ³
Core mission / goals	To integrate the three pillars — environmental, economic and social considerations — into decision-making.	To eliminate the causes of pollution rather than manage the waste generated.	To provide an organization with the assurance that its environmental performance not only meets, but will continue to meet, its legal and policy requirements.
Scope	Provides an all-encompassing vision that examines an organization's operations and their relationship to the community.	Involves improvement through design, technical, operational and behavioural changes.	Integrates an organization's structure, planning activities, responsibilities, practices, procedures and resources for the purpose of developing, implementing, achieving, reviewing and maintaining the environmental policy.
Area of focus	Integrity of natural environment, enhancing human development, equity, democracy and civility, precaution and seeking mutually supportive benefits.	Human processes and practices; material and energy use; and behavioural changes.	Information management from various sources, such as legal requirements, training records, operational procedures, and performance data.

World Commission on Environment and Development (Gro Harlem Brundtland, chair). 1987. "From One Earth to One World: An Overview," from *Our Common Future* (Oxford/New York: Oxford University Press), p. 8.

³ *Canadian Environmental Protection Act, 1999*

Greening Government Operations, Government of Canada

Examples of Pollution Prevention Opportunities Available to Government Departments

Activity	Opportunities	Examples and Success Factors
Event planning	<ul style="list-style-type: none"> • Develop green guidelines for meeting facilities 	Environment Canada participated in four carbon-neutral conferencing initiatives in 2002. Carbon-neutral conferencing is based on the Kyoto principles of emissions trading and allows for the greenhouse gas emissions associated with conference activities to be offset through the purchase of carbon credits. The first step to hosting a carbon-neutral event is to ensure that a green meeting strategy has been incorporated, to reduce emissions from the outset of the event.
Employee commuting	<ul style="list-style-type: none"> • Participate in Commuter Challenge • Parking policy gives degree of preference to carpoolers • Consider incentive programs 	Natural Resources Canada's Laurentian Forestry Centre encourages its employees to use bicycles during the warmer seasons. In 2002–2003, the result was a substantial increase in bicycle use, public transit and carpooling. In 2001–2002, there were three or four individuals who biked to work, while in 2002–2003, it was not unusual to see nearly 30 bikes a day in fair weather.
Employee travel	<ul style="list-style-type: none"> • Provide listing of Greenleaf hotels • Policy establishing preference for Greenleaf hotels for travel and for meeting facilities 	Western Economic Diversification Canada has provided a list of green hotels in the "Government Accommodation Guide." The initiative is to raise awareness and encourage the use of environmentally responsible hotels. The Royal Canadian Mounted Police have adopted green hotel practices in their barracks accommodations throughout the Northwest Region of Canada.
Water/energy conservation	<ul style="list-style-type: none"> • General environmental awareness programs • Energy performance contracting • Federal Buildings Initiative 	The Green Passport Program is a reward program developed by Public Works and Government Services Canada—Pacific Region to encourage employees to think about and practise environmental responsibility. Participants earn points based on performing environmentally friendly activities and then can claim prizes when established point levels are achieved.
Employee participation	<ul style="list-style-type: none"> • Consider employee brainstorming sessions to identify and undertake P2 activities 	The Corporate Services Branch of Health Canada engaged its laboratory scientists in a brainstorming session on what P2 is, where they are doing P2, and where they could improve. Senior management will review the ideas and make suggestions on implementation.
Waste reduction	<ul style="list-style-type: none"> • Emphasize reduction and reuse within waste management programs • Consider establishing a materials reuse centre in large office buildings 	Human Resources Development Canada established an eyeglass collection program in partnership with the Christian Blind Mission. This program aims to collect used eyeglasses and then distribute them to developing countries for reuse.

For more information on these or other transferable P2 initiatives, you may visit the National Office of Pollution Prevention website at <http://www.ec.gc.ca/nopp>.

Federal Pollution Prevention Strategy

Pollution Prevention—A Federal Strategy for Action is the Government of Canada's policy framework for advancing P2 as the priority approach to environmental protection. Approved by Cabinet in June 1995, the strategy elaborates on government policy and sets priorities for action based on five goals involving partnerships with federal departments and agencies, other orders of government, the private sector, individual Canadians and the international community.

"Pollution Prevention—A Federal Strategy for Action promotes the practice of pollution prevention throughout federal government programs and operations."



The goals of the federal P2 strategy include the following:

- Within the federal government: Institutionalize P2 across all federal government activities.
- With other governments: Foster a national P2 effort.
- With the private sector: Achieve a climate in which P2 becomes a major consideration in industrial activities.
- With all Canadians: Provide access to the information and tools necessary to implement P2 practices.
- With the international community: Participate in international P2 initiatives.

The strategy can be viewed at <http://www.ec.gc.ca/pollution/strategy/>.

Federal Pollution Prevention Coordinating Committee

The federal Pollution Prevention Coordinating Committee (P2C2) was established in 1992 and is chaired by Environment Canada. It collectively promotes the implementation of *Pollution Prevention—A Federal Strategy for Action* by encouraging the practice of P2 throughout the federal government and with the federal government's clients. The current committee membership, listed in Appendix I, includes representatives from 13 federal departments:

- Environment Canada
- Agriculture and Agri-Food Canada
- Canadian International Development Agency
- Fisheries and Oceans Canada
- Foreign Affairs and International Trade
- Health Canada
- Human Resources Development Canada
- Industry Canada
- National Defence
- Natural Resources Canada
- Public Works and Government Services Canada
- Statistics Canada
- Transport Canada

Progress in Pollution Prevention was first published in 1996. This annual report informs Canadians and government officials of national progress in P2, highlighting P2 achievements and successes across the country. By relating progress to the five target sectors of the Federal Pollution Prevention Strategy and Action Plan, this report provides a framework for monitoring performance, profiling federal environmental successes and assessing progress made towards the goals of the federal strategy.

Including the members of the P2C2, 26 federal departments and agencies contributed to this eighth annual report (see Appendix II), emphasizing the continued integration of P2 across the federal government and demonstrating federal interdepartmental collaboration.

Testimonials from the Pollution Prevention Coordinating Committee

"The report is a forum for sharing our successes and also for getting great ideas from other departments. The project summaries provided by other departments are used by Environment Canada—Ontario Region to brainstorm new ideas, and we try to replicate those successes in our own projects. We also view this report as an opportunity to provide recognition to our partners and to promote their beyond compliance activities." — *Lori Fryzuk, Environment Canada—Ontario Region*

"The Department supports the Coordinating Committee and has found it to be a worthwhile forum to share ideas. The Committee has encouraged interdepartmental cooperation while eliminating duplication of individual efforts. We have gained knowledge on pollution prevention initiatives, technologies and progress. The Pollution Prevention reports are utilized as references for new initiatives being undertaken, trends in pollution prevention and as a means to highlight some of the pollution prevention efforts of the Department." — *Kelly Thom, Foreign Affairs and International Trade*

"By contributing to the report, our Department has been able to raise the overall awareness of P2 and its related benefits. Similarly, the report serves as a great vehicle to profile local initiatives at our Bases and Facilities. This type of recognition is not only rewarding for those organizations that contributed to the

report, but it also encourages continued efforts towards implementing P2 initiatives. Our Department uses the report to foster the sharing of P2 related information, as well as communicate our internal P2 successes across our Commands and Headquarter organizations." — *Sean Baptiste, National Defence*

"The P2C2 report reminds us of the work we have done and forget to recognize. The department is getting better at identifying opportunities and projects that promote pollution prevention. Instead of labeling them as such, we simply believe in them as good projects. When we are asked to report on the P2C2, it reminds us that projects we support are beyond being good projects, they are good practice and support for pollution prevention." — *Anastasia Lim, Western Economic Diversification Canada*

National Commitment to Pollution Prevention

Within Canada, federal, provincial, territorial, municipal and Aboriginal governments share jurisdiction for the environment. The Canadian Council of Ministers of the Environment (CCME) is Canada's premier forum for intergovernmental discussion and action on environmental issues. The CCME comprises environment ministers from the federal, provincial and territorial governments, with a mandate to improve environmental protection and promote sustainable development in Canada.

In 1993, the CCME contributed to the evolution of P2 in Canada by releasing the statement entitled *National Commitment to Pollution Prevention*. In May 1996, the CCME again addressed the issue by releasing *A Strategy to Fulfill the CCME Commitment to Pollution Prevention*. This strategy sets out a shared vision, mission and goal statement, as well as guiding principles for the implementation of P2 by all provinces, territories and the federal government. As part of the strategy, the CCME jurisdictions adopted a common definition of P2: "The use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and wastes, at the source."

As stated in the CCME strategy, P2 is a shared responsibility among governments, individuals and industrial, commercial, institutional and community sectors. To show its support for P2, the CCME presents P2 awards annually and maintains a Pollution Prevention Network. The Network serves as a forum for information exchange among its members on an ad hoc basis and provides technical support to the CCME Pollution Prevention Awards Program.

The Government of Canada, with stakeholders in the private sector, environmental non-government organizations, communities, labour and academia, is putting P2 into practice through a mix of regulatory, non-regulatory and economic instruments. This includes modernizing legislation and regulations, managing national programs, developing guidelines and codes of practice for industrial operations, establishing Canada-wide Standards for specific substances, supporting voluntary initiatives, ensuring accessibility of tools and information and implementing international agreements.

Key Pollution Prevention Policies and Regulations

Environmental Performance Agreement Policy Framework, 2001	2001
<i>Canadian Environmental Protection Act, 1999</i>	2000
Sustainable Development in Government Operations, A Coordinated Approach	2000
CCME Policy for the Management of Toxic Substances	1998
A Strategy to Fulfill the CCME Commitment to Pollution Prevention	1996
Pollution Prevention — A Federal Strategy for Action	1995
Greening of Government Operations Policy	1995
<i>The Act to Amend the Auditor General Act</i> pertaining to sustainable development strategies	1995
Toxic Substances Management Policy	1995
CCME National Commitment to Pollution Prevention	1993

Measuring Progress in Pollution Prevention

Measuring P2 progress is important. It helps us to identify and understand trends and conditions in the environment and public health, locally and globally. In addition, measured environmental results help us assess the effectiveness and progress of environmental programs and initiatives and help government departments decide where to implement effective environmental improvements.

The main challenge in measuring P2 progress is the lack of common means of measurement to determine the effectiveness or success of P2 programs in altering behaviour as a whole. For example, some departments measure actual quantities or costs to gauge a facility's total impact on the environment, while others may use qualitative data that describe the activities

or actions that promote environmental efforts or improvements. Due to the varying metrics and data collection techniques used across departments, it remains a challenge to quantify nationwide progress on P2. It is also a significant challenge to measure change in behaviour as a result of a P2 outreach activity. There are numerous outreach activities profiled within this report, including workshops, brochures and pilot projects; the difficulties remain on how to measure their impact on behaviour. Another common challenge facing government departments is the resources involved in gathering the follow-up data. Most projects are designed for implementation and do not include a specific follow-up component. Many projects have subtle or residual effects that continue long after the project is delivered, sometimes in areas of influence not envisioned by the original authors.

Government departments are starting to address the P2 measurement challenge by creating systems that track and report P2 progress. Agriculture and Agri-Food Canada is developing a web-based database and reporting system for environment-related information called an Environmental Information and Performance Management System. The system will track progress and maintain accurate inventories in key areas of environmental performance, thereby helping the department report on P2 progress for the P2 annual progress report. Environment Canada—Ontario Region is investigating a data collection system that will track quantitative and measurable results for its P2 initiatives. This system will allow the region to measure the degree to which it is meeting deliverables, measure value added, calculate the impact of programs and set priorities and future directions.

Progress within the Federal Government

Federal pollution prevention strategy goal: Institutionalize pollution prevention across all federal government activities.

National Programs

Legislation and Regulations

The *Canadian Environmental Protection Act, 1999* (CEPA 1999) recognizes the importance of P2 planning. Part 4 provisions allow the federal government to require the preparation and implementation of P2 plans for specific toxic substances. Environment Canada has initiated the process of requiring plans in respect of specific substances on the List of Toxic Substances. P2 planning is a systematic, comprehensive method of identifying options to minimize or avoid the creation of pollutants or waste. It is best applied to an entire process or facility. The more comprehensive the planning process, the more likely it will focus on the root causes of problems, identify the most cost-effective P2 opportunities and avoid inappropriate trade-offs (such as substituting one toxic substance for another). Plans should be tailored to the needs of the organization, forming an integral part of its existing business plan. For more information, visit the Environment Canada website at <http://www.ec.gc.ca/NOPP/P2P/en/P2plan.cfm>.

Below are consultation highlights from 2002–2003: **Update**

- In May 2002, a proposed P2 planning notice was published in the *Canada Gazette* for acrylonitrile. The objective of the acrylonitrile P2 planning notice is to reduce releases of acrylonitrile from synthetic rubber manufacturing sources to the lowest achievable levels by 2005 through the application of the best available techniques that are economically achievable.
- In August 2002, a proposed P2 planning notice was published in the *Canada Gazette* for dichloromethane. The objective of the dichloromethane P2 planning notice is an aggregate 85% reduction in emissions by 2007 (compared with 1995 levels) from five

industrial sectors: aircraft paint stripping, flexible polyurethane foam blowing, pharmaceutical and chemical intermediates, adhesive formulations and industrial cleaning.

- In November 2002, Environment Canada completed initial cross-Canada consultations for a proposed P2 planning notice for ammonia, inorganic chloramines and chlorinated wastewater effluents. P2 planning is proposed as a first step towards a long-term strategy for managing the municipal wastewater effluents sector to ensure that, across the country, the release of wastewater effluents does not pose unacceptable risks to human health, ecosystem health or fishery resources. Consultations will continue until December 2004, as the notice is finalized and published. For more information, visit Environment Canada's website on municipal wastewater effluents at <http://www.ec.gc.ca/etad/default.asp?lang=En&n=9F3404CF-1>.
- Consultations are under way for a proposed P2 planning requirement with the wet processing textile mill sector for textile mill effluents and nonylphenol and its ethoxylates. One objective is to reduce the use of nonylphenol and its ethoxylates from the wet processing textile industry by 97% from 1998 levels, by 2009. The other objective is to reduce the toxicity of effluents from textile mills that use wet processes to levels that are significantly less harmful to the environment.
- There are ongoing consultations with manufacturers and importers of products containing nonylphenol and its ethoxylates for a proposed P2 planning requirement. The objective is to reduce nonylphenol and its ethoxylates in the products covered by the P2 planning notice by 95% for the calendar year January 1 to December 31, 2010.

Several promotional and assistance tools have been developed for those subject to a P2 planning notice. These tools promote the concept of P2 and P2 planning. These include an online P2 planning tutorial at <http://www.ec.gc.ca/NOPP/P2TUT> and a series of fact sheets on P2 best practices and activities that individual Canadians, companies and government departments can incorporate into everyday life at <http://www.ec.gc.ca/NOPP/DOCS/FACT>.

New

Part 8 of CEPA 1999 provides authority to require environmental emergency (E2) plans for substances once they have been declared toxic by the Ministers of Environment and Health (s. 199). In 2002–2003, all remaining substances currently on the List of Toxic Substances (Schedule 1 of CEPA 1999) or substances that have been assessed as toxic and recommended for addition to the list were evaluated for possible E2 plan requirements using the E2 Planning Risk Evaluation Framework. An E2 plan outlines a facility's preparations and procedures to reduce the likelihood and consequences of an E2 involving toxic substances. Part of the overall risk management process should consider not only possible quantity reductions for substances used but also opportunities for product substitution. During 2002–2003, Environment Canada's Environmental Emergencies program continued the development of a regulation under s. 200 of Part 8 of CEPA 1999 that requires the preparation and implementation of E2 plans for those facilities that use any of 174 listed substances at or above specified thresholds or store them in containers at or above the same thresholds. Substances have been included for their toxic, flammable or other hazardous properties. The regulation can be viewed on the *Canada Gazette* website at <http://canadagazette.gc.ca/partII-e.html/2003/20030910/html/sor307-e.html>. **Update**

Public Works and Government Services Canada is developing Environmental Emergency Response Plans (EERPs) for facilities equal to or greater than 10 000 m² in size. As of March 2003, 81 of 107 (76%) departmental facilities larger than 10 000 m² have prepared voluntary EERPs. Departmental facilities less than 10 000 m² in size within Ontario and Pacific regions have also voluntarily prepared EERPs. Similarly, Environment Canada—Atlantic Region staff continue to minimize the impact of land development and spills through the identification of resources at risk and assistance with spill prevention, containment and cleanup strategies. In April 2002, Environment Canada launched a web-based version of its mapping program.

Update

Federal Climate Change Commitment

Federal House in Order is an initiative to encourage the reduction of greenhouse gas (GHG) emissions within federal operations. The initiative involves 11 departments and agencies that together account for an estimated 95% of all Government of Canada GHG emissions. Federal House in Order is led by Environment Canada and Natural Resources Canada. Public Works and Government Services Canada became a co-chair later in 2003.

The Government of Canada has committed to reporting annually on its GHG emission reduction achievements to the Voluntary Challenge and Registry, and it received Gold Level reporting status in its 2003 update report entitled *Emissions Reductions from Federal Operations*.² Highlights include the following:

- The Government of Canada Action Plan 2000 on Climate Change announced a revised GHG emissions target of a 31% reduction from 1990 levels by the year 2010.
- The Government of Canada has reduced its energy use and has switched to cleaner fuels, thereby reducing total GHG emissions by 24% between 1990 and 2001.

Further information can be found by visiting the Federal House in Order website at <http://www.fho.gc.ca>

Toxic Substances

Under CEPA 1999, substances are found to be "toxic" if they pose a significant risk to the health of Canadians and the environment. In order to manage these substances, the Act requires that preventative and control measures be developed within strict legislative timelines. Part 5 of CEPA 1999 provides the authorization to develop regulations that are used to control the manufacture, use and release of toxic substances. The Toxic Substances Management Policy outlines the federal government's risk management process for toxic substances based on two key objectives: virtual elimination from the environment of toxic substances that are persistent, bioaccumulative and primarily the result of human activity (Track 1) and life cycle management of other toxic substances and substances of concern to prevent or minimize their release into the environment (Track 2). Environment Canada applies a P2 approach and the precautionary principle to the management of both Track 1 and Track 2 substances. Domestic action has already been taken to limit or prohibit the manufacturing, use, importation or release of identified substances.

Key achievements, by sector, appear in the table on page 14. Included are regulations that require dry cleaners to shift to more efficient technology, which will result in a 70% reduction in use of tetrachloroethylene by 2005. Similarly, regulations addressing the solvent degreasing sector, which is the other major source of release of tetrachloroethylene, aim to freeze the quantity of tetrachloroethylene that can be used and thus reduce its use by 65% by 2007. Furthermore, new regulations were also promulgated under the *Fisheries Act*, whereby world-class standards will be implemented throughout the Canadian mining sector. The *Metal Mining Effluent*

This update report provides current emissions data for 2001

Key Achievements in Managing Substances Found Toxic under CEPA and CEPA 1999

Targeted Sectors ¹	Achievements in 2002–2003
Dry cleaning (tetrachloroethylene)	<ul style="list-style-type: none"> • <i>Tetrachloroethylene</i> (Use in Dry Cleaning and Reporting Requirements) <i>Regulations</i> in force
Solvent degreasing (tetrachloroethylene, trichloroethylene)	<ul style="list-style-type: none"> • Proposed <i>Solvent Degreasing Regulations</i> published in the <i>Canada Gazette</i>
Steel manufacturing (benzene, inorganic arsenic compounds, inorganic cadmium compounds, oxidic, sulphidic and soluble inorganic nickel compounds, polycyclic aromatic hydrocarbons, dioxins/furans)	<ul style="list-style-type: none"> • Canada-wide Standard for Dioxins and Furans: Steel Manufacturing Electric Arc Furnaces endorsed by the CCME • Canada-wide Standard for Dioxins and Furans: Iron Sintering Plants endorsed by the CCME • CEPA Codes of Practice published, and Code conformance by steel mills being reviewed by third party
Base metal smelters (inorganic arsenic compounds, inorganic cadmium compounds, oxidic, sulphidic and soluble inorganic nickel compounds, releases from copper smelters and refineries and zinc plants)	<ul style="list-style-type: none"> • CEPA Codes of Practice and CEPA Pollution Prevention Plan Requests being considered
Targeted Substances ²	Achievements in 2002–2003
Benzene	<ul style="list-style-type: none"> • Proposed <i>Regulations Amending the Benzene in Gasoline Regulations</i> published in the <i>Canada Gazette</i> • <i>On-Road Vehicle and Engine Emission Regulations</i> in place (come into force in 2004) • Proposed <i>Off-Road Small Spark-Ignition Engine Emission Regulations</i> published in the <i>Canada Gazette</i> • Proposed <i>Environmental Emergency Regulations</i> published in the <i>Canada Gazette</i>
Dichloromethane	<ul style="list-style-type: none"> • Proposed Notice Requesting the Preparation and Implementation of Pollution Prevention Plans published in the <i>Canada Gazette</i>
Benidine, benidine dihydrochloride, hexachlorobenzene	<ul style="list-style-type: none"> • <i>Prohibition of Certain Toxic Substances Regulations</i>, 2003 in force
Acetaldehyde, acrolein, 1,3-butadiene	<ul style="list-style-type: none"> • <i>On-Road Vehicle and Engine Emission Regulations</i> in place (come into force in 2004) • Proposed <i>Off-Road Small Spark-Ignition Engine Emission Regulations</i> published in the <i>Canada Gazette</i> • Proposed <i>Environmental Emergency Regulations</i> published in the <i>Canada Gazette</i>

¹ Substances found to be toxic from Priority Substances List 1.² Substances found to be toxic from Priority Substances Lists 1 and 2.

Regulations require all mines in Canada to meet these new standards and to participate in an environmental effects monitoring program, which will determine the effectiveness of these regulations. Forty-four substances on the first Priority Substances List (PSL1) were assessed under the Priority Substances Program by 1994. Of these, 25 were found to be toxic. Management options, developed in consultation with stakeholders, have been adopted for a number of sectors and substances, and work is proceeding on those remaining.

A second Priority Substances List (PSL2) was published in 1995, with 25 additional substances. Actions on these substances are being developed as part of a substance-specific or sector-specific risk management strategy that presents the approach taken, the proposed management objectives and proposed risk management measures. Consultations will be held on these strategies and during the subsequent development of risk management tools.

In addition, precursors to PM (particulate matter) and ozone and its precursors, were added to the list of toxic substances in 2003, providing the federal government with the tools necessary to implement its commitment under the CCME Canada-wide Standards.

A complete list of the substances found toxic as a result of the PSL1 and PSL2 assessments conducted under the former *Canadian Environmental Protection Act* and the current Act (CEPA 1999), as well as the measures that Environment Canada has put in place to manage these substances, can be found at <http://www.ec.gc.ca/toxics>. Such measures include risk management strategies for each toxic substance, as well as the status of the development of preventative and control instruments.

The New Substances Program, under Parts 5 and 6 of CEPA 1999, is an integral part of the federal government's approach to P2.

The program ensures that no new substances (i.e., chemicals, polymers and inanimate and animate products of biotechnology) are introduced into the Canadian marketplace before they have been assessed to determine whether or not they are toxic or capable of becoming toxic to the environment or human health. The risks of substances determined to be, or suspected of being, toxic or capable of becoming toxic may be managed, as necessary, through the imposition of conditions or the prohibition of their import or manufacture. The New Substances Program operates under the *New Substances Notification Regulations* and is jointly administered by Environment Canada and Health Canada. The New Substances Program recently underwent public consultations for the chemical and polymer portion of its regulations, out of which came 76 recommendations for the improvement of the *New Substances Notification Regulations* and the New Substances Program. The recommendations for improvement are in five areas: Risk Assessments, Regulatory Framework, Transparency, Responsiveness of the Regulations and the New Substances Program in an International Context, and Service Delivery. Over 900 new substances notifications were received by Environment Canada and Health Canada in 2002–2003. For more information, visit the New Substances Program website at http://www.ec.gc.ca/substances/nsb/eng/index_e.htm. **Update**

Environment Canada's Mercury and the Environment website at <http://www.ec.gc.ca/mercury> provides information on what measures people can take to reduce mercury use and its releases. Environment Canada also serves on a task force, with the United States and Mexico, that is responsible for developing the North American Regional Action Plan on Mercury. The plan calls for joint and individual efforts to reduce the exposure of North American ecosystems to mercury.

Update

Clean Air/Water

The National Pollutant Release Inventory (NPRI) tracks and provides Canadians with access to information on the releases and transfers of key pollutants and related P2 activities by industrial and commercial facilities located in their communities. For the 2002 reporting year, 2 534 facilities reported at least one type of P2 activity. Approximately 26% of all P2 activities reported in 2001 were in the form of "good operating practices or training." Beginning with the 2002 reporting year, the NPRI reporting form includes a further breakdown of each of the P2 reporting categories. This further subdivision of categories was added following consultation with stakeholders in 2001. The new categories will assist reporting facilities in identifying activities within their facilities that can be reported as a P2 activity. In addition, the 2002 NPRI reporting form features additional questions pertaining to the implementation of P2 plans. These questions will help develop a more complete picture of P2 in Canada. For more information, visit the NPRI website at <http://www.ec.gc.ca/pdb/npri>.

Update

"The NPRI provides Canadians with access to information on the releases and transfers of key pollutants. Beginning in 2002, the NPRI began collecting information on the implementation of P2 plans."



"In June 2002, Environment Canada conducted an anti-idling campaign at its two biggest buildings in the National Capital Region, Les Terrasses de la Chaudière and Place Vincent Massey."



**Arrêter
le moteur** | **Turn
Engine Off**

In June 2002, Environment Canada conducted an anti-idling campaign at its two biggest buildings in the National Capital Region, Les Terrasses de la Chaudière and Place Vincent Massey. During the eight days of the anti-idling campaign, volunteers observed more than 1 150 drivers who had left their engines running unnecessarily. In total, these drivers left their engines idling for more than 50 hours and released 161 kilograms of carbon dioxide into the atmosphere. The goal of the campaign was to raise awareness (through the use of communication products such as brochures, posters, window stickers and signs) about the negative impacts of idling vehicles at drop-off and pick-up areas. The buildings have been permanently designated idle-free zones. As a result, drivers stopping at these buildings for longer than 10 to 20 seconds, including taxis, are encouraged to turn off their engines. Plans are under way to take the campaign to other Government of Canada facilities through the Federal House in Order Leadership Challenge. For more information, visit the Leadership Challenge website at <http://www.fhio-ifppe.gc.ca>.

Environment Canada's National Office of Pollution Prevention works with federal departments that own or operate waste incinerators to ensure that they achieve the Canada-wide Standards for Mercury

Emissions as set out by the CCME.

Implementation activities include both P2 and pollution control approaches. **New**

Policy Integration

Environmental assessment (EA) is a tool used by the federal government, under the *Canadian Environmental Assessment Act*, to ensure that potential adverse environmental effects of proposed projects are identified and mitigated where possible. An EA provides a proven systematic approach for identifying, predicting, evaluating and mitigating the potential environmental effects of proposed projects before irrevocable decisions are made. Additionally, through strategic EA, P2 considerations are incorporated into decision-making, including policy, plan and program proposals. This guarantees that environmental implications are taken into account by decision-makers in the same way that social, economic and policy factors are considered. Environment Canada's EA program incorporates P2 objectives and approaches into EA by recommending that proponents establish programs that apply P2 and best management practices. Through EA, the Government of Canada works closely with provincial and territorial governments and the private sector in areas such as mining, oil sands development, energy production and natural gas pipelines. **Update**

Among other federal departments, Transport Canada uses strategic EA as a way to ensure that the environmental consequences of plans, policies and program proposals are taken into account and addressed at the planning stage, before decisions are made. In the fiscal year of 2002–2003, the department trained 42 people in strategic EA. **Update**

P2 training specific to EA, along with broader awareness material, was delivered to staff of Foreign Affairs and International Trade by Public Works and Government Services Canada. Five staff attended the workshops in 2002–2003. The P2 knowledge acquired

in this course will help staff determine the environmental impacts of proposed projects and recommend whether the projects should proceed. **New**

Western Economic Diversification Canada has been working to improve the consistency and quality of EA screening reports for water and wastewater projects as part of delivering the Infrastructure Canada Program in Alberta and Saskatchewan. The Model Class Screening Report serves as a template for the review and examination of P2 options for sewer and water infrastructure projects. For more information, visit the Infrastructure Canada Program website at http://www.wd.gc.ca/ced/infrastructure/definition_e.asp. **New**

In 2002, Human Resources Development Canada (HRDC) undertook steps towards the development of a departmental Pollution Prevention Plan. A document was created that identifies potential opportunities for integrating P2 principles into a number of operational activities and program areas, such as purchasing, waste management, water and energy conservation and vehicle fleet management. Within HRDC, Financial and Administrative Services is responsible for implementing the actions. **New**

The Canadian Economic Development Agency signed a cooperation agreement with Environment Canada-Quebec Region to provide the technical and scientific support for small and medium-sized enterprises (SMEs) on project implementation for the development of technologies, products and services relating to the environment, sustainable development and P2. In 2002–2003, the Agency and its partners supported projects that focused on wastewater, mining, marine biotechnology and innovative forest products. **Update**

The principles of P2 are fully incorporated in the nine Environmental Guidelines that were developed by Correctional Services Canada (CSC) and finalized in 2002–2003. The guidelines are now an integral part of

how the CSC does business and will be reviewed periodically in light of relevant legislative changes and/or developments in the area of best ecological practices and environmental technologies. The challenges in this area continue to be the inherent limitations in the financial and human resources allocated to CSC's environmental program; therefore, the department endeavours to identify methods that offer the highest cost-benefit ratio. **New**

Government Operations

The Government of Canada is committed to making government greener by promoting the adoption of P2 and environmentally responsible approaches and practices in each of its departments and agencies. This portion of the report outlines P2 and other environmental initiatives undertaken by government departments in 2002–2003.

Interdepartmental Cooperation on Pollution Prevention and Environmental Management

Federal departments and agencies often share interests, mandates or responsibilities for government operations and sustainable development. Participation in interdepartmental groups is essential for developing common tools, coordinating activities and sharing information.

Federal interdepartmental mechanisms in place to promote coordination on environmental management activities include:

- Deputy Ministers' Environment and Sustainable Development Coordinating Committee
- Assistant Deputy Ministers' Committee on Environment and Sustainable Development
- Interdepartmental Network on Sustainable Development Strategies
- Assistant Deputy Ministers' Sustainable Federal House in Order Committee
- Sustainable Development in Government Operations (SDGO) Director General's Coordinating Committee
 - SDGO Guidance Task Group
 - Green Procurement Task Group
 - Environmental Management Systems Task Group
 - Sustainable Real Property Task Group
- Director General's Toxic Substances Management Committee
- Pollution Prevention Coordinating Committee
- Federal House in Order Coordinating Committee
- Interdepartmental Advisory Group on Water Conservation at Federal Facilities
- Regional Federal Councils

Sustainable Development and Environmental Management Systems

The 1995 amendments to the *Auditor General Act* require numerous federal departments and agencies to table sustainable development strategies in Parliament, outlining departmental goals for integrating sustainable development into their policies, programs and operations, and to update these strategies every three years. The second round of sustainable development strategies was tabled in February 2001. In renewing their sustainable development strategies, departments took deliberate steps to strengthen management systems to ensure implementation. They also emphasized collaboration with common goals shared across portfolios. Eight priority areas were identified for coordinated action and planning, including sustainable development

in the North, sustainability in Canadian communities, promoting eco-efficient practices in the private sector and sustainable development in government operations.

Canada's Commissioner of the Environment and Sustainable Development monitors the extent to which departments and agencies have met the objectives and implemented the action plans set out in their strategies. These annual reviews and each department's individual sustainable development strategy can be viewed on the Office of the Auditor General of Canada's website at <http://www.oag-bvg.gc.ca/>.

An EMS provides a systematic framework to help an organization manage its environmental obligations and document, evaluate and communicate its environmental performance. A new EMS Task Group, struck under the Sustainable Development in Government Operations (SDGO) Director General's Coordinating Committee and co-chaired by Environment Canada and Transport Canada, replaces the Federal Committee on Environmental Management Systems (FCEMS). The EMS Task Group is streamlining committees and working groups that previously reported to the FCEMS. The Task Group continues the efforts started under the FCEMS to promote the effective implementation of departmental EMSs. Some examples of effective implementation of EMSs appear below.

In 2002–2003, the Canadian Food Inspection Agency (CFIA) implemented a national EMS across its regional facilities. The CFIA also developed a National EMS Manual that will guide implementation of area/site-specific EMSs and minimize the environmental impact of CFIA activities. For example, within CFIA labs, there are standard operating procedures for activities such as farm and livestock operations, boiler and generator management, energy management and fleet management. The Agency will continue to provide and document training for area EMS teams.

Update

Transport Canada has revamped its EMS Manual to be web-based; as a result, its employees can view the manual electronically, find the most current information possible and update their own regional EMS manuals. P2 initiatives within the EMS include fuel reduction through fleet management, prevention of stormwater contamination through a glycol monitoring program and prevention of greenhouse gas (GHG) emissions through the Green Commute Program. The department is also updating its Environmental website at <http://www.tc.gc.ca/environment/menu.htm#environmental>. Similarly, in early 2003, HRDC launched an internal website with an emphasis on P2 awareness. The site provides an environmental laws database, sustainable development links, the department's Environmental Action Plan and an online training course on energy, water, vehicles, procurement and compliance.

Update

Fisheries and Oceans Canada continues to implement its integrated occupational health and safety and environmental management system for the Institute of Ocean Science and Pacific Geosciences Centre in British Columbia. P2 is an integral part of the management system and will be adopted through training and procedures implementation. The department is also in the preliminary stages of implementing EMSs at its Parry Sound, Kenora, Hay River and Yellowknife bases. The department's Marine Environmental Management Program is being used on 12 of the department's vessels. **Update**

Parks Canada's EMS is based on the ISO14001 standard. The agency has also developed a set of national online interactive action plan registries and tracking databases to efficiently build customized environmental management action plans and to enter data for national reporting. Within its EMS, Parks Canada has set a target to reduce its GHG emissions by 5.2% (3 000 tonnes) from 1998 levels by 2010. Efforts to achieve this target include retrofitting buildings, purchasing

more efficient vehicles and switching to "cleaner" fuels. **New**

In January 2003, the Royal Canadian Mounted Police's (RCMP) Environmental Policy was adopted in support of its Sustainable Development Strategy. This policy commits the RCMP to continuous improvement in P2. It is also the cornerstone of an EMS that is being readied for implementation. **New**

"In January 2003, the Royal Canadian Mounted Police's (RCMP) Environmental Policy was adopted. The policy commits the RCMP to continuous improvement in P2."

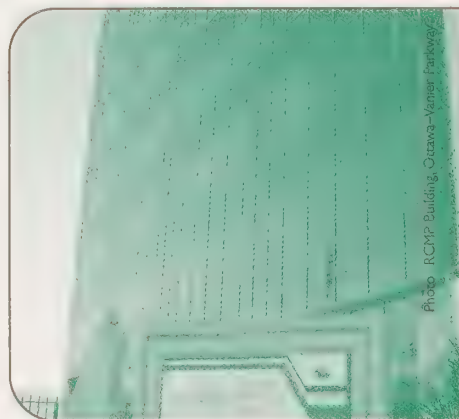


Photo: RCMP Building, Ottawa—Vanier Parkway

Precautionary Principle

The Rio Declaration Precautionary Principle states that "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

Adoption of the Rio definition of the precautionary principle into CEPA 1999 has triggered efforts to prepare a framework for its use in Canada. The framework outlines guiding principles for the application of precaution to science-based decision-making in areas of federal regulatory activity for the protection of health and safety, and the environment and the conservation of natural resources. Ultimately, the framework provides a lens to assess whether precautionary decision-making is in keeping with Canadians' social, environmental and economic values and priorities.

Sustainable Development in Government Operations (SDGO)

SDGO is a government-wide initiative, established in early 2000 to meet the government's commitment to environmental excellence in its own operations. The SDGO initiative coordinates the efforts to green government operations and report collectively on progress. The initiative involves the 25 departments and agencies that are required by legislation to prepare sustainable development strategies and 3 departments and agencies that voluntarily prepare sustainable development strategies.

The SDGO initiative is co-led by three departments: Environment Canada, Natural Resources Canada, and Public Works and Government Services Canada. Environment Canada continues to administer a web portal facilitating access to information, best practices and tools related to greening government generally and to the SDGO initiative specifically. Public Works and Government Services Canada continues its efforts at building regional capacity for coordinated greening of federal operations.

Natural Resources Canada, on behalf of the initiative, produced the first aggregate report, *Greening the Federal House*, on the status of federal operations in six areas pertaining to the operational impact on the environment. This is the first time that information in the areas of Solid Non-hazardous Waste Management, Water Conservation and Wastewater Management as well as Green Procurement has been collected on a broad scale. The report also provides an overview of the activities in three other areas—Energy Efficiency/Buildings, Vehicle Fleet Management and Land Use Management—that are already being monitored by other mechanisms.

Departments are encouraged to follow best practice examples as outlined in the priority areas below. To learn about best practices, find helpful links or read the report, visit the greening government website at <http://www.greeninggovernment.gc.ca>.

Priority Area	Examples of P2 Practices and Techniques
Waste <ul style="list-style-type: none"> • Identify waste reduction opportunities, taking advantage of existing auditing tools and procedures. • Develop and implement a waste reduction action plan, including an awareness program for employees. • Separate waste streams at source to facilitate reuse, recycling and proper disposal. 	<ul style="list-style-type: none"> • Reducing inputs and waste. • Reuse and recycle on site. • Operating efficiencies and training.
Water Conservation and Wastewater Management <ul style="list-style-type: none"> • Identify water savings opportunities, taking advantage of existing audit tools and procedures. • Develop and implement a water conservation plan. • Specify water-saving equipment and devices for future purchases, such as water-efficient fixtures, including toilets, faucets, showerheads and appliances. 	<ul style="list-style-type: none"> • Ensure hazardous materials are disposed of properly. • Reduce the water volume to water treatment facilities.
Energy Efficiency/Buildings <ul style="list-style-type: none"> • Develop and implement energy management plans, including preventative maintenance (guidelines are available under the Natural Resources Canada Federal Buildings Initiative). • Implement all economically attractive energy retrofits. • Take advantage of the Federal Buildings Initiative, which provides products and services in support of the above activities. 	<ul style="list-style-type: none"> • Procurement of renewable energy or green power. • Energy-saving equipment and devices, such as those marked with the ENERGY STAR symbol, specified for future purchases, e.g., energy-efficient lighting, at http://oee.nrcan.gc.ca/energystar/english/.
Vehicle Fleet <ul style="list-style-type: none"> • Manage fleet vehicles in accordance with economic and environmental objectives of the Treasury Board Motor Vehicle Policy being developed in partnership with Natural Resources Canada and Environment Canada. • Wherever possible, use low-sulphur diesel and ethanol—gasoline blends, meeting environmental specifications. • Purchase original equipment manufactured alternative fuel vehicles or retrofit vehicles where life cycle costs are comparable to those of gasoline or diesel-fuelled vehicles. 	<ul style="list-style-type: none"> • Purchase small, more energy efficient vehicles (e.g., hybrid vehicles). • Number of vehicles for departmental use reduced.
Procurement <ul style="list-style-type: none"> • Evaluate potential purchases as outlined in Treasury Board's Material Management Environmental Guidelines. • Consistent with Canada's international trade obligations, purchase products and services that meet environmental specifications wherever these are available, and consider life cycle costs. In some cases, this could involve a small price differential. • Provide green procurement training to officers with purchasing authority to improve decision-making, such as Implementing Environmental Purchasing Policies, available from Environment Canada. 	Purchasing products with environmental labelling: <ul style="list-style-type: none"> • ENERGY STAR at http://oee.nrcan.gc.ca/energystar/english/; • EcoLogo at http://www.environmentalchoice.ca/; and • Greenleaf hotels at http://greenleafw.areaguides.net/hotels.html

Priority Area	Examples of P2 Practices and Techniques
<p>Human Resources Management</p> <ul style="list-style-type: none"> • Consistent with Treasury Board's personnel policy, adopt human resource management practices that foster innovative working arrangements, such as job sharing and working from home, which support environmental objectives. • Infuse environmental awareness into all training programs, particularly orientation training. 	<p>Awareness programs:</p> <ul style="list-style-type: none"> • Commuter Challenge at http://www.commuterchallenge.ca/; and • Paper Save and Zero Waste Program at http://www.greeninggovernment.gc.ca/default.asp?lang=En&n=9697C298-11. <p>Training available to public service employees:</p> <ul style="list-style-type: none"> • Energy efficiency workshops (delivered by Natural Resources Canada); and • Pollution Prevention Practitioners Course and Certificate (delivered by the Canadian Centre for Pollution Prevention).
<p>Land Use</p> <ul style="list-style-type: none"> • The identification, classification and assessment of sites of concern on departmental lands should be undertaken using the CCME National Classification System or a similar tool. • The management of risk to human health and the environment should include risk assessment and techniques for containment, mitigation and remediation. • Site remediation objectives should be based on the existing CCME Environmental Quality Criteria as appropriate or the CCME Risk Assessment Framework for Ecological and Human Health Effects, for risk-based remediation plans. 	<ul style="list-style-type: none"> • Planting hardy and native plants that need less pesticides and water. • Phasing out the use of hazardous substances.

Environment Canada—Prairie and Northern Region continues to implement EMSs at four of its facilities based on the ISO14000 series of standards. Facilities with an EMS range from isolated weather stations in the high Arctic to research facilities and warehouses in urban settings. For instance, Prairie and Northern Wildlife Research Centre has implemented P2 through its facility-wide EMS. The facility has converted all 55 of its fire extinguishers to non-halon extinguishers, and all the building lighting was upgraded in 2002 to T-8 lamps and electrical ballasts in all fluorescent fixtures, with a net reduction in power of approximately 40% in the levels by lighting load. **New**

Waste Reduction

All federal departments have set targets to reduce waste sent to landfill. Approximately 67% of HRDC personnel have access to programs for source reduction and materials reuse, exceeding the target within the

Sustainable Development Strategy of 50% of personnel by March 31, 2002. Similarly, within the Department of National Defence, waste reduction initiatives have been put into place at all Canadian Forces Support Unit Ottawa sites in an effort to divert 3% more waste from landfill by 2004 compared with 2000–2001. As of 2002–2003, 100% of the facilities have implemented a waste reduction program. For example, the kitchens at Connaught Range Primary Training Centre and Military Stores Building composted over 10 000 kilograms of organic waste in 2002–2003. **Update**

In 2002–2003, many federal departments undertook construction, renovation or demolition projects. Agriculture and Agri-Food Canada diverted from landfill approximately 90% of building demolition wastes from four demolished buildings located at the Lethbridge Research Centre. This 90% reduction in waste destined for landfill was achieved through recycling

and the reuse of equipment such as boilers, air compressors and hot water tanks. The RCMP also have a plan for diverting windows, doors, wood, bricks and electrical equipment. **Update**

Statistics Canada has dramatically reduced paper use. In 2002–2003, approximately 900 000 fewer printed pages were generated. The percentage of publications available electronically has remained at 62%. The department continues to investigate new avenues to expand electronic distribution of its publications. In the National Capital Region, Public Works and Government Services Canada reduced paper telephone directories by 40% (from 4 045 to 2 462) by encouraging an electronic alternative to the 2003 telephone directory. **Update**

In 2002–2003, Fisheries and Oceans Canada's Newfoundland Region made investments in technologies that will

"Since the inception of the light station solarization program, Fisheries and Oceans Canada has converted 20 remote light stations."



reduce the amount of hazardous wastes generated. At the Hay River Canadian Coast Guard Base, a waste oil furnace was purchased, thus using waste oil that would otherwise require disposal at a significant cost, saving over 5 000 litres of waste oil annually. A solvent recycling system was installed at the Buoy Maintenance Facility in St. John's, Newfoundland, reducing waste solvents by 2 000 litres per year. Similarly, formaldehyde-recycling equipment was purchased at the Maurice Lamontagne Institute. **Now**

In 2002–2003, seven facilities within Canadian Forces Support Unit Ottawa participated in the Green Move Program. The program collects and redistributes office materials that otherwise would have been disposed of during a move. From one move alone, over 12 000 kilograms of materials were redistributed, saving \$2 000 in landfill costs. Materials that Crown Assets is not interested in are donated to non-profit organizations, such as the Ottawa-Carleton District School Board. **Now**

Justice Canada, in an effort to reduce paper usage, piloted the Barrister's Briefcase Project. In 2002–2003, 294 934 pages were electronically managed and

provided to federal government litigators. Efforts are now under way to fully deploy the electronic document management system, which will significantly reduce paper waste and file storage requirements.

Now

The Public Service Commission continues to have in effect its environmental code, which was developed in 1990. This code provides a framework for Commission employees to make their workplace environmentally friendly. This framework includes recommendations for the reduction, reuse and recycling of office supplies and materials used by the Commission in everyday applications. For instance, office supplies such as staplers, binders and furniture are sent to a central location, where other employees can reuse them. In addition, the Commission continues to deal with firms that specialize in "green products". **Now**

Energy Efficiency/ Water Conservation

The Federal Buildings Initiative (FBI) is designed to facilitate energy efficiency upgrades and building retrofits for departments, agencies and Crown corporations of the Government of Canada. In 2002–2003, Natural Resources Canada oversaw the achievement of \$1 million worth of incremental energy savings, improving energy intensity³ by 20% and reducing GHG emissions by 15–20%. Communications Research Centre Canada (CRC), an agency of Industry Canada, manages nearly 100 buildings within the Shirley's Bay Campus in Ottawa. Through the FBI, the CRC Campus Energy Action Team worked with private business to develop an efficient energy savings plan for campus buildings that has resulted in a 41% savings in energy and a 59% savings in water usage over the past five years.

Carbon dioxide emissions have been reduced by approximately 5 000 tonnes per year. Past work included replacing and upgrading old equipment and installing energy-efficient lighting and other resource-saving devices. In 2002–2003, work continued with the installation of motion detectors for lighting and the promotion of the campus energy education program using the innovative "Amp Champ" cartoon series. The RCMP also commenced an FBI energy savings program at Regina's Training Academy, with an estimated annual energy savings of \$600 000, with a GHG emission reduction of 4 968 kilotonnes of carbon dioxide equivalent⁴ per year. Energy audits were also done by the New Brunswick Power utility at various detachments in the Atlantic region. For more information on the FBI, visit the Office of Energy Efficiency website at <http://oe.nrcan.gc.ca>. **Update**

Fisheries and Oceans Canada installed solar power systems at remote light stations to replace electricity supplied by on-site diesel generators. This change led to the removal of 16 fuel storage tanks. Since the inception of the light station solarization program, the department has converted 20 remote light stations. The program has eliminated the potential for petroleum releases from fuel transfer and tank failure at these facilities, while reducing carbon dioxide emissions by approximately 740 tonnes. **Update**

The Atlantic Canada Opportunities Agency has partnered with Natural Resources Canada on an energy efficiency and renewable energy initiative for Atlantic Canada. The objective is to increase Atlantic Canada's use of Natural Resource Canada's Industrial Energy Efficiency Audit Program and Renewable Energy Research and Development Program. In 2003, industrial energy efficiency in the manufacturing sector was studied. **Update**

³ $\frac{\text{Total energy consumed by a sector}}{\text{Total amount of activity in that sector}}$ over a year period.

⁴ Carbon dioxide equivalent is a standard measure for GHG emissions, which include carbon dioxide, methane, nitrous oxide and sulphur hexafluoride.

"The main objective of Enviroclub^{OM} for federal facilities is to help federal agencies involved in environmental or operations management to carry out P2 projects within their organization."



During 2002–2003, National Defence used approximately 20 billion litres of treated water—a 10% reduction from 2000–2001. The reduction of treated water consumption will remain a priority for continual improvement. **Update**

An Energy Monitoring Protocol was created to promote effective and responsible management of energy consumption in Correctional Services Canada's (CSC) institutions. The Protocol tracks the total amount of energy, except for vehicle fuel, that is purchased by each institution or complex. The department also has a Water Consumption Monitoring Protocol to monitor and promote water conservation. Water conservation measures help to reduce the harmful environmental impacts of withdrawing, treating and using groundwater and surface water and of treating wastewater. **New**

Parks Canada's Master Plan for the Reduction of Greenhouse Gas Emissions provides guidance and direction on opportunities for emission reductions, such as energy efficiency of its buildings, facilities and fleet. In most cases, this will be achieved by reducing the consumption of fossil fuels and electricity or switching to a "cleaner" fuel type. The program will save money in operating costs as a result of retrofitting buildings to be more energy

efficient and purchasing more efficient vehicles. **New**

Operations/Facility Management

In 2002–2003, Canadian Forces Base Kingston, in conjunction with Environment Canada-Ontario Region, Federal Programs Division, developed a "Mercury Products and Inventory Manual for Federal Facilities." The manual assists with identifying, replacing and recycling mercury-containing equipment. In addition to the manual, a database has also been created to record the specific inventory information obtained. Efforts are also under way to reduce the number of new mercury-containing products installed at federal facilities. Environment Canada will work with other federal departments to encourage life cycle management of mercury-containing products. It will also work with industry and jurisdictions where lamps are manufactured in an effort to meet the Canada-wide Standard for Mercury-Containing Lamps as set out by the CCME. **New**

By converting from a dual- to a single-boiler operation during the winter months, an Agriculture and Agri-Food Canada facility in Guelph, Ontario, was able to reduce its heat loss and as a result its annual carbon dioxide emissions by 978 kilograms. This was accomplished by installing a pressure sensor on the steam system that is connected to the building's automation system. Chemical waste was also reduced as a result of this conversion. The facility also cut back on boiler cycling and lowered the operating pressure from 689 to 414 kilopascals as another measure to reduce heat loss and improve system efficiency. It is estimated that these measures will reduce annual carbon dioxide emissions by an additional 1 232 kilograms and will reduce the use of sulphite and sludge conditioner. Within the same facility, a thermdrive distilled water system was connected to the building's automation system. In the past, cooling water from the unit would be wasted to the drain while

the unit was not being supplied with steam. The unit now operates only when the boiler is operating, saving approximately 5 455 litres of water per day. The department also installed a new energy-efficient cooling tower, which replaced a unit containing chlorofluorocarbons. **New**

Enviroclub^{OM} for federal facilities is a pilot project coordinated and delivered by Environment Canada—Quebec Region. The project, launched in May 2001, will end in September 2003. Its main objective is to help federal facilities involved in environmental or operations management carry out P2 projects within their organization. The project has three components: training and awareness for participants in P2-related fields; facility visits to identify P2 opportunities; and implementation and follow-up of each partner's P2 projects. The following federal departments are involved in implementing 11 P2 projects: National Defence, Canada Economic Development, Parks Canada, Montreal Port Authority, Transport Canada, Public Works and Government Services Canada, Correctional Services Canada, and Indian and Northern Affairs Canada. In total, the 11 federal partners achieved the following reductions: 20 tonnes of carbon dioxide equivalent, 7 500 litres of gasoline, 330 litres of varsol, 3.5 kilograms of nonylphenol ethoxylates, 435 litres of hazardous waste, 205 litres of sulphuric acid and 42 kilograms of 2-butoxyethanol. The total number of staff who attended the training workshops was 116. **Update**

In 2002–2003, Health Canada undertook initiatives to avoid potential fuel spills. Diesel fuel storage tank system operators were trained in the proper care and maintenance of Health Canada's fuel storage tanks. Overall, 22 fuel tank operators received training, accounting for 15% of the tank locations. Health Canada also upgraded or replaced diesel fuel storage tanks in seven First Nations communities. Similarly, many other federal departments and agencies, including Agriculture and

Agri-Food Canada and Communications Research Centre Canada, an agency of Industry Canada, have been replacing their existing fuel storage tanks, which store various forms of hydrocarbons and chemicals, with new models that can detect if and when products enter the cavity between the primary and secondary tank shells. This technology upgrade minimizes the risk of, and potential liability for, soil and groundwater contamination.

New

In 2002–2003, a hazardous materials assessment was completed for each of the 13 Canadian Forces Support Unit Ottawa reserve unit facilities. Recommendations included proper storage and handling equipment for hazardous materials, proper placement of storage areas and use of signage. Implementation of the recommendations from the assessment, coupled with the courses given in spill response, will assist in the prevention of spills and their potential impacts on the environment. Similarly, National Defence's Maritime Forces Atlantic distributed spill kits throughout Stadacona and Dockyard areas and delivered quick-response training sessions to 100 personnel.

New

Environment Canada—Prairie and Northern Region's Atmospheric and Monitoring Division built five new energy-efficient buildings over the past four years. The new buildings made use of reusable construction materials, such as structurally insulated panels, linoleum flooring, steel framing and rubber flooring made from recycled tires for use in storage areas. Environment Canada also manages the Eureka Weather Station, an operation comparable in size to a small town or mining camp. Year-round residents produce the power for the site. A gradual increase in energy consumption was observed up to 2002, with approximately 525 000 litres of diesel consumed in 2001. During 2002, generators were able to operate more efficiently by adjusting controlling mechanisms and through awareness training of employees and

contractors, resulting in a reduction to 465 000 litres of consumed diesel.

New

Land Use

Health Canada's Scarborough, Ontario, laboratory has negotiated a new grounds-keeping contract, incorporating requirements to reduce grass-cutting frequency and to discourage grass cutting on smog alert days. The contract also requires the use of only environmentally friendly weed control products and cleaning products. Other environmental initiatives include tree planting on the property to absorb carbon dioxide emissions.

Update

In 2002–2003, over 75% of all National Defence bases and facilities eliminated the use of pesticides for cosmetic lawn care purposes. For example, Maritime Forces Pacific (MARPAF) developed a formal Integrated Pest Management Plan and continues to seek alternatives to chemical treatments, such as steam, hand-held propane weeders and mechanical control methods, such as bark mulch. The long-term target is to have all bases and facilities eliminate the cosmetic use of pesticides by 2003–2004. In 2002–2003, reduction percentages compared with 1999–2000 totalled 86% by weight and 72% by volume. Similarly, the Canadian Food Inspection Agency (CFIA) is working with building owners within its leased facilities to adopt an Integrated Pest Management Program. This will result in a reduction in pesticide use.

Update

Vehicle Fleet Management

The Federal Vehicles Initiative, formerly the FleetWise Program, helps federal departments improve the operational efficiency of their vehicle fleets, reduce emissions from federal operations and promote the *Alternative Fuels Act* within the federal fleet. In the total federal fleet of 24 400, there are 5 battery electric vehicles, 425 propane vehicles, 300

natural gas vehicles and 132 hybrid vehicles. Managed by Natural Resources Canada, the initiative now has 65 vehicles in the Ottawa area operating on E-85 fuel (85% ethanol). On average, E-85 reduces GHG emissions by 75% compared with regular gasoline. Across Canada, seven E-85 fuelling sites have been established, three in the Ottawa area. As more sites become established, the ability of federal departments to use this fuel will be enhanced. Use of alternative fuels by federal fleets is targeted to rise in the long term by 10%. For more information, visit the Office of Energy Efficiency website at <http://oee.nrcan.gc.ca>.

Update

In its own house, Natural Resources Canada has repositioned its sectoral vehicle resources within the National Capital Region to a centralized departmental vehicle pool, whereby vehicles are rented back to clients. This management framework optimizes vehicle utilization and ensures the promotion and use of alternative fuel technology vehicles and lower-emissions fuel. Of the 60 pool vehicles, 70% are lower-emission, alternative fuel vehicles, and over 50% of the fuel consumed is cleaner burning alternative fuel. Overall, the number of vehicles department-wide that are required for the delivery of programs has been reduced by 40% since 1996.

Update

"On average, E-85 reduces GHG emissions by 75% compared with regular gasoline."



Alternative Fuels Act for Fleet Acquisition

The *Alternative Fuels Act* will accelerate the use in Canada of alternative transportation fuels (ATFs) in motor vehicles and reduce the emission of carbon dioxide and other GHGs. The Act targets the federal vehicle fleet, thus providing the government with a leadership role in the use of ATFs.

For instance, the Act requires departments and agencies to review each new vehicle acquisition in terms of its estimated annual fuel consumption and primary operational tasks and to purchase an ATF vehicle for a minimum of 75% of cases where it would be both cost-effective and operationally feasible.

Federal departments also purchased other types of alternative fuel vehicles during 2002–2003. For instance, Agriculture and Agri-Food Canada continues to purchase vehicles that operate on E-85 fuel, while Justice Canada is encouraging its drivers to use a gasoline/ethanol blend whenever and wherever it is available. Indian and Northern Affairs Canada has a new departmental fleet policy restricting the purchase of sport utility vehicles with eight-cylinder engines. Communications Research Centre Canada, an agency of Industry Canada, is committed to reducing the impact of its vehicle fleet by purchasing alternative fuel vehicles, improving vehicle maintenance and tracking vehicle usage. As of March 2003, Public Works and Government Services Canada has a fleet of 75 alternative fuel vehicles, exceeding its target of 60 for March 31, 2004. **Update**

The Canadian Food Inspection Agency (CFIA) continues to promote to its staff new initiatives related to green driving practices.

Practices include servicing vehicles regularly to optimize performance, reducing the weight that vehicles carry to improve fuel economy, maintaining correct tire pressure and reducing engine idling time. The practices will be included in the Vehicle Use Policy and will also be incorporated in each vehicle's fleet log book. In 2002–2003, the Agency exceeded the requirements of the *Alternative Fuels Act* by acquiring 121 E-85 alternative fuel vehicles out of 243 new vehicle acquisitions. **Update**

The CFIA participated in the Ontario Region Corporate Smog Action Plan initiated by Environment Canada, Health Canada and Public Works and Government Services Canada. The plan encourages the adoption of practices to reduce smog precursor emissions from federal government operations. The Agency now has a smog coordinator responsible for raising awareness on the issue of smog. **Update**

In 2003, National Defence's Directorate Support Vehicle Program Management Program installed auxiliary power units that provide 24-volt and 110-volt power on Class 8 trucks. The auxiliary power units will minimize idling time and fuel consumption. Reductions in fuel consumption are expected to be 4.4 litres of fuel per hour of idling time per vehicle. In the past, the diesel engine had to run to provide power for functions such as climate control; the auxiliary power unit now serves that function. **New**

Procurement

The federal government annually purchases several billion dollars' worth of consumer, commercial and industrial goods. The purchase of environmentally responsible goods and services presents a significant opportunity to have a positive effect on Canada's domestic market for environmental goods and services. In 1994, the Canadian Environmental Industry Strategy called for departments to increase green procurement

activity and to report publicly on progress towards that objective. The term "green" procurement is used to describe the procurement of goods and services that have less impact on the environment (e.g., conserve energy, reduce waste, etc.) than other products or services that meet similar performance requirements. A Green Procurement Reporting Framework was developed to provide information in a consistent and acceptable manner to the Commissioner of the Environment and Sustainable Development. The reporting framework can be viewed on the Treasury Board website at <http://www.tbs-sct.gc.ca/cmp/home-accueil.asp>.

The CFIA's National Procurement and Contracting Service Centre offered its staff greener procurement training through a Public Service Commission course. Participants learned how to select green products and services for the workplace and gained a basic understanding of global warming/climate change and other major environmental issues. Simple measures, such as buying subscriptions to electronic periodicals, have resulted in substantial cost savings and eliminated paper usage. **Update**

In 2002–2003, Human Resources Development Canada (HRDC) purchased \$3.25 million worth of green products and services. The department exceeded its target by 8.75% over the baseline. Its national target was to increase the amount of green procurement by 7% by March 31, 2003. **Update**

In 2003, approximately 1 150 litres of environmentally responsible cleaning products were purchased for use at various Canadian Forces Support Unit Ottawa sites, with the support of Public Works and Government Services Canada. The cleaning products are certified Environmental Choice products that have low potential for environmental illness and endocrine disruption. The long-term objective is to reduce the amount of

non-biodegradable chemicals entering the wastewater stream from janitorial activities.

New

The Contracts and Material Management Section of the National Library of Canada and National Archives of Canada has developed an Environmental Checklist to assist employees who have purchasing authority in selecting environmentally appropriate products. A total of 29 National Archives of Canada employees were trained on green procurement. Similarly, 100% of Justice Canada employees who hold acquisition cards have received green procurement training. **New**

The Alberta Federal Council Sustainable Development Committee, co-chaired by Environment Canada and Public Works and Government Services Canada, organizes various green initiatives; these include hosting a Green Fair in Canada Place, Edmonton, which allowed departments to showcase their environmentally related work; conducting a lunchtime speaker series; launching a carpool initiative; and supporting green commuting events and green procurement training. A one-day green purchasing course was hosted in Yellowknife by Public Works and Government Services Canada, and a three-day course on green procurement and sustainable development was hosted in Edmonton by Environment Canada for procurement specialists as part of their accreditation process. **New**

Training and Awareness

Environment Canada—Prairie and Northern Region has Green Teams with volunteer staff members conducting various activities at each of the following office locations: Yellowknife, Iqaluit, Regina, Saskatoon, Winnipeg, Edmonton and Calgary. Activities include promotion of P2 through Earth Day and Environment Week, commuter challenges, litter-less lunches, bike clinics, vehicle emissions clinics, waste audits, an ongoing poster or

staff newsletter program, perennial plant exchanges, vermi-composting and on-site reuse and recycling programs. These activities reach approximately 670 employees, and many of the site recycling and reuse programs benefit non-profit or other community groups. Other unique activities include sending shredded paper waste to local stables for horse bedding in Yellowknife and the production of one-good-side paper notepads by a local high school in Regina. **New**

Pollution Prevention Planning Course and Certificate

Environment Canada's National Office of Pollution Prevention and Environment Canada—Ontario Region, among other partners, contributed to the development of the two-and-a-half-day "Pollution Prevention Planning & Beyond" course. The course is directed towards P2 practitioners—professionals who are responsible for designing, implementing and maintaining P2 programs for themselves or for businesses/organizations in Canada. The course is delivered by the Canadian Centre for Pollution Prevention, a not-for-profit non-governmental organization, and is directly linked to a P2 "planner" certificate. In 2002–2003, several P2 planning seminars were delivered, and seven individuals received certificates. For more information, visit the Canadian Centre for Pollution Prevention website at <http://www.c2p2online.com>.

Environment Canada is helping its employees reduce their environmental footprint by providing an Environmental Practices section on the Employee Orientation site located on Infolane. The section highlights how employees can do their part with regards to greener procurement, reducing GHG emissions, waste reduction, recycling and supporting EMSs. In addition, the department also

developed a strategy to reinstate a network of volunteer employees to help promote environmentally responsible behaviour in the department. The initial focus for the Green Teams will be in the National Capital Region, with a long-term vision of coordinating with its other regional offices. **New**

In 2002–2003, CSC delivered training on its EMS to 216 employees and managers. This accounted for a total of 405 person-days of training, or one to three persons per institution. In the event of responding to hazardous materials spills, approximately 15 institutions within CSC have received specific training on the issue of emergency spill response in addition to generic sessions given to all CSC key response personnel. **New**

Sustainable Transportation Choices

Transport Canada is leading a pilot project in which employees of Environment Canada, Transport Canada, Natural Resources Canada and the Treasury Board Secretariat in the National Capital Region can purchase an annual discounted transit pass through monthly payroll deductions starting October 2002. This pilot project promotes bus transit as a sustainable commuting option to Government of Canada employees in partnership with OC Transpo in Ottawa and Société de transport de l'Outaouais in Gatineau. Its success will be measured by the reductions in emissions of GHGs and other air pollutants, the level of employee participation and the increase in federal employees awareness of actions they can take. Over 900 employees have signed up for the Transit Pass Pilot Project; over 400 are from Transport Canada. It is estimated that the Transit Pass Pilot Project in its first year will reduce the number of kilometres travelled by car by 300 000, which is equivalent to approximately 45 tonnes of carbon dioxide emissions. **New**

In 2002, Environment Canada conducted a Commuter Options Survey of its employees in the National Capital Region. The 922 responses were analyzed, and this information has assisted in the development of a Commuter Options Strategy. The strategy will assist employees at two Environment Canada work sites in the National Capital Region—Les Terrasses de la Chaudière and Place Vincent Massey—in making sustainable commuting choices that reduce GHG emissions and improve air quality. The survey is one of the activities planned under the Federal House in Order's Leadership Challenge component to reduce outside emissions that are not

directly attributable to Government of Canada operations, but are a result of government and work-related activities, such as business travel and employee commuting. **New**

The Commuter Challenge is a friendly competition between Canadian cities to see which one can cut its air pollution the most by using active and/or sustainable modes of transportation during Environment Week—the first week of June. HRDC was one of many federal departments that participated in this annual event. In 2002, 501 HRDC employees participated, equating to 5 100 kilograms of GHG emission reductions. For more information, visit the Go for Green Commuter Challenge website at <http://www.commuterchallenge.ca/>.

credits from the emissions trading market through the Voluntary Challenge and Registry. The department is preparing a guide to facilitate holding carbon-neutral conferences. **New**

Environment Canada applied an EMS to the G-8 Environment Ministers' Meeting in Banff in 2002. To offset the 500 tonnes of GHG emissions, emission reduction credits were purchased from an energy-efficient housing project in South Africa. Also, hybrid vehicles were used, all electricity purchased was wind-generated and most food served was organic. **New**

"It is estimated that the Transit Pass Pilot Project in its first year will reduce the number of kilometers traveled by car by 300 000, which is equivalent to approximately 45 tonnes of carbon dioxide emissions."



Event Planning

In 2002, Environment Canada participated in four carbon-neutral conferencing initiatives, leading to a total offset of over 4 500 tonnes of carbon dioxide equivalent. Carbon-neutral conferencing is based on the Kyoto principles of emissions trading. It allows for the GHG emissions associated with conference activities to be offset through the purchase of carbon credits. Environment Canada purchased carbon emission credits by funding international projects that led to reduced GHG emissions, while delivering high sustainability and social benefits in the countries where the projects were implemented. The department later retired the 2 000 tonnes of carbon

Large-Scale Event Planning: Lessons Learned

- Choose a hotel that has adopted good environmental practices.
- If using an EMS, it needs to be applied early in the process, and staff need to understand its implications.
- The use of group transportation and hybrid vehicles will help reduce GHG emissions.
- The purchase of GHG reduction credits should be used only as a last measure, after all efforts have been made to reduce car and plane usage.
- Many of the greening features, such as organic food and coffee and renting hybrid vehicles, are more expensive. These additional expenses can be overcome through sponsorship from local stakeholders.

For more information on Green Meetings, visit the Environment Canada—Atlantic Region website at <http://www.atl.ec.gc.ca/greenman/manual.html>.

Preventing Release of Ozone-Depleting Substances

Federal activities account for about 10% of ozone-depleting substances (ODS) in use in Canada. Federal uses of halocarbons include refrigeration and air conditioning, fire suppression, solvent degreasing, sterilization, pest control and laboratories. Halocarbons are of national and international concern because they cause stratospheric ozone depletion (with a few exceptions) and contribute to climate change. Federal facilities are subject to the *Federal Halocarbons Regulations* under the provisions of CEPA 1999 on federal lands. The regulations address the P2 of ODS and certain alternatives. Many federal departments have taken action to prevent the release of ODS. For example, Agriculture and Agri-Food Canada continues to replace its R-12 refrigeration units with energy-efficient units and has reduced the quantity of ODS within its inventory. Fisheries and Oceans Canada has removed its halon systems from eight Canadian Coast Guard sites, totalling over 510 kilograms of halon. In 2002, Canadian Forces Fleet School Esquimalt, Marine Systems Engineering Division, initiated a project to trial a hydrocarbon-based refrigerant on the main refrigeration unit used to train its technicians. The use of the new refrigerant promotes the selection of suitable alternatives to substances that have ozone-depleting potential and/or global warming potential. Lastly, CSC adopted best practices in order to prevent leaks/losses of halocarbons from air conditioning and other refrigeration systems.

Upcoming Projects

National Defence's MARPAC will put in place Energy Performance Contracts encompassing more than 60 buildings associated with Canadian Forces Base Esquimalt. The contracts have been adopted by other bases and include various equipment upgrades and retrofits, such as lighting, air sealing, treated water measures, central heating plant and other energy controls. An employee awareness campaign was initiated in support of the pending contracts, and approximately 1 800 posters, 750 brochures, 1 000 light covers and 1 000 mirror stickers were distributed. Anticipated MARPAC savings are approximately \$5.6 million over the next 10 years. Similarly, Maritime Forces Atlantic conducted a waste minimization opportunity assessment at Fleet Maintenance Facility Cape Scott and, in the near future, will consider implementing many of the recommendations, such as installing water meters and the reuse of chemicals/rinse water in cleaning processes.

A wind power feasibility study is under way at National Defence's Connaught Range and Primary Training Centre in Ottawa. Data will be collected for a period of two years, and a feasibility study will be conducted at the end of the monitoring period to identify options for wind power, a clean form of energy.

The Green Passport Program is a reward program developed by Public Works and Government Services Canada-Pacific Region to encourage employees to think about and practise environmental responsibility. Participants earn points based on performing environmentally responsible activities and then can claim prizes when they achieve established point levels. Eligible activities include double-sided printing/copying, using Greenleaf hotel accommodations, using public transportation, owning a fuel-efficient vehicle, home insulation, installing low-flow showerheads, growing organic vegetables and composting. There are currently 150 participants in the Pacific Region. The program could expand into other regions if its success continues.

"A wind power feasibility study is under way at National Defence's Connaught Range and Primary Training Centre in Ottawa."



The following table summarizes the linkages to programs and initiatives undertaken in P2 under the federal government's action plan on P2 within federal government operations.

Tracking Progress Against Pollution Prevention—A Federal Strategy for Action

Goal: Institutionalize P2 across all federal government activities

Actions	Status	Examples
1. Incorporate P2 into federal legislation.	Ongoing	<ul style="list-style-type: none"> • <i>Canadian Environmental Protection Act, 1999</i> • P2 planning provisions and related tools
2. Establish and implement green policies.	Ongoing	<ul style="list-style-type: none"> • Significant number of activities within Greening of Government Operations
3. Establish a Commissioner of the Environment and Sustainable Development to advance P2 in the federal government.	Complete	<ul style="list-style-type: none"> • Commissioner established following changes to the <i>Auditor General Act</i> in 1995
4. Integrate P2 into departmental policies and programs.	Ongoing	<ul style="list-style-type: none"> • P2 incorporated into sustainable development strategies • Guidelines and EAs

Progress with Other Governments

Federal pollution prevention strategy goal: Foster a national pollution prevention effort.

Provincial, Territorial and Municipal Partners

The Environmental Affairs Branch of Industry Canada assessed the feasibility of a municipal-based EMS using the ISO14001 standard. The one-year pilot initiative delivered several workshops to facilitate implementation of an EMS at the municipal government level and to improve understanding of the environmental impacts of municipal operations and plans, in order to mitigate such impacts. The workshops were held in Vancouver, Hamilton, Waterloo, Calgary, Banff and Halifax and included technical expertise, case studies, site tours, sample documents, practical exercises and post-seminar support. Participation in the initiative was voluntary. The workshops facilitated partnerships between industry and municipal governments and created opportunities for discussion and networking. The project engaged 47 federal, provincial and municipal governments, 20 industries and two academic institutions. **Update**

In 2002, the governments of Canada and Quebec, along with the Société de Transport de Montréal, Rothsay Laurencio, the Canadian Renewable Fuels Association and the Fédération des producteurs de cultures commerciales du Québec, launched the BIOBUS biodiesel demonstration and impact assessment project in Montreal. The project will gain practical experience in the use of biodiesel under real-life conditions, particularly in cold weather, and demonstrate the feasibility of supplying biodiesel to a mass transit company. In 2002–2003, the project operated 155 biodiesel buses. The project has resulted in a 1300-tonne reduction in carbon dioxide emissions for the 155 biodiesel buses using 5% or 20% biodiesel fuel. It will assess the economic impact of using this fuel, which is made from recycled sub-food-grade vegetable oil and animal fats. For more information, visit the Société de transport de Montréal website at <http://www.stm.info/>. **Update**

In 2002–2003, Environment Canada—Ontario Region, with the assistance of a federal–provincial–municipal steering committee, facilitated the development of mass multimedia communication tools on the reduction of residential pesticide use. Focus group sessions were held in Toronto and Montreal for the purpose of testing the key messages and acquiring feedback on the communication strategy. Efforts are now under way to provide Canadian municipalities with these communication tools. **New**

As part of the Personal Vehicle Initiative, Natural Resources Canada has created a web-based tool kit—The Idle-Free Zone—to assist municipalities and community groups in increasing levels of awareness and in taking action to curb unnecessary vehicle idling. The cities of Mississauga and Sudbury piloted an anti-idling campaign. The general public was the target in all of the pilots through a public-wide promotional campaign. Municipal employees were specifically targeted as a “house-in-order” initiative with awareness campaigns. The post-campaign survey revealed that 69% of the general public claimed to have seen, heard or read about the campaign, while the frequency of idling decreased from 54% to 29%. For more information, visit the Office of Energy Efficiency website at <http://oee.nrcan.gc.ca>. **New**

With technical and financial assistance from Environment Canada—Atlantic Region's Sustainable Communities Initiative and Eco-Action program, three communities in Cape Breton are working with partners to have the Bras d'Or Lakes designated as vessel “no-discharge” zones under the *Canada Shipping Act*. In a lead-up to this designation, stakeholders in these communities are developing strategies to prevent, reduce or control all land-based and vessel discharges to the water. The Pitu'paq Committee, a partnership of mayors, wardens and First Nations chiefs, is addressing three aspects of the sewage issue: central

collection and treatment systems, faulty or non-existent on-site systems and recreational boating. **New**

A Green Business Network was launched in February 2003 within Nova Scotia as part of a larger Municipal Water Pollution Prevention Program. The Program's objective is to develop commercial, institutional and residential plans and actions to reduce the discharge of hazardous materials and pollutants to the municipal sewage system. The Green Business Network is a partnership of Nova Scotia Department of Environment and Labour, Environment Canada and the Lunenburg Board of Trade. Through the delivery of seminars/workshops, it promotes to SMEs the specific environmental and economic benefits of adopting a P2 approach. A luncheon seminar was held in February 2003, with three subsequent on-site P2 planning workshops. A final draft of a P2 workbook for Nova Scotia Business was developed for use in Lunenburg, as well as throughout Nova Scotia. **New**

“The Municipal Water Pollution Prevention Program's objective is to develop commercial, institutional and residential plans and actions to reduce the discharge of hazardous materials and pollutants to the municipal sewage system.”



Community Energy Management is an integrated approach to examining the way in which energy is supplied and used in a community and is focused on the reduction of energy use through local initiatives. Environment Canada—Atlantic Region staff, together with other partners at the national and international level, are encouraging the adoption of new technologies and more informed decisions at the community level on issues such as solid waste management, transportation planning, landscaping and urban design, land use planning, and planning and design of other infrastructure (e.g., water and sewage treatment systems). A guidebook has been created to support the development of such energy plans and can be found on the Federation of Canadian Municipalities website at <http://kn.fcm.ca/ev.php>. **New**

With support from Environment Canada's Pollution Prevention Demonstration Fund, the St. John's Atlantic Coastal Action Program (ACAP) conducted a study in Donovan's Park to understand better the types and quantities of contaminants entering the sanitary sewage system. The project consisted of distributing a survey to businesses to better understand the types of contaminants they release and taking water samples within the sewer systems. The study results indicated that most businesses/industries require additional information in order to prevent or control the contaminants stemming from their operations. The study can also assist regulatory departments in developing sewer use by-laws to control the release of substances at source. **New**

2002 CCME Pollution Prevention Awards

The CCME gives national recognition to companies and organizations showing innovation or leadership in P2. The 2002 CCME Pollution Prevention Awards were presented to the following recipients:

- Aurum Experience Ltd. of Rocky Mountain House, Alberta, for building an ecotourism inn that is dedicated to providing quality accommodation with minimal adverse environmental effects.
- Informco, Inc. of Scarborough, Ontario, a graphic and lithographic printing company, for identifying P2 opportunities and improving practices in their printing process. The company adopted non-volatile organic compound-based additives in its printing process and thereby reduced volatile organic compound emissions to the environment by 4 tonnes per year.
- Novopharm Ltd. in Toronto, Ontario, for eliminating the use of dichloromethane in its pharmaceutical process operations. The company switched from a solvent-based to an aqueous-based process in its pharmaceutical tablet coating operations to achieve a reduction of 488.7 tonnes of dichloromethane emissions to air per year in 1997–2001, and it is expected to report 0 tonnes per year in 2002.
- The City of Toronto Works & Emergency Services Department, Water & Wastewater Services Division, Industrial Waste & Storm Water Quality Unit, for becoming the first municipality in Canada to incorporate P2 requirements into its Sewer-Based By-law. The by-law places strict limits on the quality and amount of industrial discharge to the municipal sewage system, specifically addressing 38 "subject pollutants" that are recognized as toxic, persistent and bioaccumulative substances.
- Labour Environmental Alliance Society of British Columbia, for designing the toxin elimination project Cleaners, Toxins and the Ecosystem, which eliminates the use of cleaning products containing toxic chemicals that are known carcinogens, endocrine disruptors and ozone-depleting substances.
- Mountain Equipment Co-op, for using sustainable building techniques and technologies in the design of its retail facility in Winnipeg, Manitoba. The company has accomplished P2 targets by constructing the building to conserve energy and reduce GHG emissions through heating and cooling, practising water conservation to reduce wastewater and eliminating solid waste production.
- Alberta-Pacific Industries Inc. of Boyle, Alberta, and their Carbon Central Team, for developing processes and programs to limit carbon dioxide emissions and allow its pulp mill to become carbon neutral by 2006.

For more details on the CCME awards, visit the CCME website at <http://www.ccme.ca>.

"The Georgia Basin Action Plan aims to protect and restore ecosystem health while developing sustainable communities and partnerships to provide economic opportunities and social well-being in this region of British Columbia."



Regional Initiatives

The five-year Georgia Basin Ecosystem Initiative—renamed the Georgia Basin Action Plan—will build on the progress made from 1998 to 2002, by protecting and restoring ecosystem health while developing sustainable communities and partnerships to provide economic opportunities and social well-being in this region of British Columbia. The Georgia Basin Action Plan is committed to using scientific and indigenous knowledge to improve decision-making, applying sustainable land, aquatic and resource use planning and targeting ecosystems for protection and restoration. The goal is to provide healthy, productive and sustainable ecosystems and communities in the Georgia Basin. For more information, visit the Environment Canada website at http://www.pyr.ec.gc.ca/GeorgiaBasin/gbi_eIndex.htm. **Update**

Canada's National Programme of Action for the Protection of the Marine Environment from Land-based Activities (NPA) is led by Fisheries and Oceans Canada and Environment Canada. It has been prepared through the collaborative effort of the federal, provincial and territorial governments. The NPA complements integrated management in the coastal zone, coastal marine protected areas and P2. In 2002, the NPA Advisory Committee began the development of an NPA Action Plan to guide the implementation activities

for the period 2002–2006. The NPA Atlantic Team identified seafood processing as one of several areas where immediate action could be taken with a P2 approach. There are over 600 processors in Atlantic Region. The first data collection phase has begun, where there has been a review of federal/provincial regulatory requirements, as well as a compilation of available site-specific processing plant data. P2 opportunities include substitution of cleaning chemicals, process changes to reduce the pH or salinity of effluent or diverting a waste stream for value-added processing. For more information, visit the NPA website at <http://www.npa-pan.ca>. **Update**

The governments of Canada and Ontario have signed the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem. The Agreement outlines how the two governments will cooperate and coordinate their efforts to restore, protect and conserve the Great Lakes basin ecosystem. The governments of Canada and Ontario have committed to work with producers and others responsible for sources of pollutants towards virtual elimination of persistent, bioaccumulative, toxic substances, such as polychlorinated biphenyls, and reductions of other harmful pollutants, using a substance- and/or sector-specific approach. They also plan to have a 90% reduction in the release of dioxins and furans and an 85% reduction in mercury releases by 2005, compared with releases in 1988. Other goals are to reduce pollutant discharges from municipal sewage treatment plants and combined sewer overflows and to reduce loadings of nutrients, pathogens and trace contaminants from urban stormwater. For more information, visit the Environment Canada website at <http://www.on.ec.gc.ca/coa/>. **Update**

Partnerships with Aboriginal Communities

The following are some examples of P2 initiatives with Aboriginal peoples.

The Atlantic Policy Congress of First Nations Chiefs, assisted by the Community Animation Program of Environment Canada—Atlantic Region, facilitated a workshop in September 2002 on closing the regulatory gap and improving the health and environmental conditions in Aboriginal communities. Workshop participants discussed topics such as water quality protection, indoor air quality, fuel storage tank maintenance and solid waste management. The workshop served to raise awareness of environmental issues on reserves and the need for both control and preventative actions.

Recommendations included: increasing environmental education on the reserve and providing training in environmental by-law development for Aboriginal communities. **Now**

Environment Canada—Atlantic Region provided financial assistance for a report on inspections of residential oil tanks in six First Nations communities. Potential

"The Canada–Ontario Agreement Respecting the Great Lakes Basin Ecosystem outlines how these two governments will cooperate and coordinate their efforts to restore, protect and conserve the Great Lakes basin ecosystem."



spill hazards were assessed for 269 tanks. The survey identified maintenance issues and recommended replacement of 64 tanks. Indian and Northern Affairs Canada is responsible for implementing the recommendations and, as of March 2003, has replaced 56 of the tanks. Results and recommendations were presented to council in each community. **NO.**

Environment Canada—Atlantic Region continues to work with First Nations and Parks Canada to develop spill contingency and P2 plans. Most of the national parks in Atlantic Region have received training, the most recent being Cape Breton Highlands National Park, where 20 staff received training. Work has been under way with First Nations facilities in Cape Breton. The plans have been very effective in reducing the number of spills and controlling the impact of spills that do occur. **NEW**

The following table summarizes the linkages to programs and initiatives undertaken in P2 under the federal government's action plan on P2 with other orders of government in Canada.

Tracking Progress Against Pollution Prevention—A Federal Strategy for Action

Goal: Foster a national P2 effort.

Actions	Status	Examples
Review legislation, regulations and policy for opportunities to harmonize approaches to P2.	Ongoing	<ul style="list-style-type: none"> • CCME Canada-wide Standards • Canada–Ontario Agreement
Develop practical tools, such as guidelines and codes of practice, to enable people to implement P2 at an operational level.	Ongoing	<ul style="list-style-type: none"> • Municipal EMS pilot • Municipal Wastewater Effluent Risk Management Strategy • The Idle-Free Zone tool kit
Educate the public about P2 and train relevant groups in the technical aspects of P2.	Complete	<ul style="list-style-type: none"> • CCME Pollution Prevention Awards

Progress with the Private Sector

Federal pollution prevention strategy goal: Achieve a climate in which pollution prevention becomes a major consideration in private sector activities.

Industrial Pollution Prevention

Responding to suggestions put forward by the New Directions Group⁵ and recommendations of the Commissioner for Environment and Sustainable Development, Environment Canada, in consultation with interested Canadian stakeholders, developed a "Policy Framework for Environmental Performance Agreements." The Minister of Environment issued the policy framework in June 2001. Environmental performance agreements (EPAs) are voluntary agreements negotiated among industry, government agencies and non-government organizations to achieve specified results. Environment Canada is guided by the following principles in negotiating EPAs:

- *Effectiveness:* EPAs must achieve measurable environmental results.
- *Credibility:* The public must have confidence in the approach and in the parties' capacity to deliver on their commitments.
- *Transparency and accountability:* All parties to an agreement must be publicly accountable for the commitments they make and for the performance against the commitments.
- *Efficiency:* EPAs should be no more expensive to the parties for equivalent environmental results.

Similarly, EPAs are negotiated around the following core design criteria:

- senior commitment from participants;
- clear environmental objectives and measurable results;
- clearly defined roles and responsibilities;
- provision for consultation;
- public reporting;
- verification of results;
- incentives and consequences; and
- continual improvement.

To date, Environment Canada has signed four EPAs and is in the process of negotiating a fifth. These agreements and their key objectives and commitments are outlined below.

The Automotive Parts Manufacturers' Association negotiated a five-year EPA with Environment Canada and Industry Canada. The agreement, which was signed in October 2002, builds P2 performance targets into facility ISO14001 EMSs. Targets for the association include a 20% reduction in VOC emissions by 2007 and a 3% reduction in carbon dioxide emissions by 2007, both from a 2000 base year, and individual facility P2 initiatives for targeted toxic substances. Facilities will be registered with ISO14001 by December 2003. For more information, visit the Automotive Parts Manufacturers' Association website at <http://www.apma.ca>. **Update**

In September 2001, Environment Canada and Canadian companies manufacturing and processing refractory ceramic fibres signed an EPA based on commitments made in the Strategic Options Report for this sector. This EPA will assist in gathering actual emission data to determine if additional control measures are needed and to confirm the commitment of industry to establish and maintain a product stewardship program.

Update

In October 2001, Environment Canada signed an EPA with two Dow Chemical facilities (Fort Saskatchewan, Alberta, and North Vancouver, British Columbia) to reduce releases of 1,2-dichloroethane. The agreement acknowledges Dow's proactive approach to environmental management and requires the preparation of an Environmental Management Plan, including goals, target dates and timelines for emission reduction of 1,2-dichloroethane. **Update**

*... of corporate executives and leading environmentalists came
... an objective was to seek opportunities to improve how organizations
... the environment*

Environment Canada renewed the Memorandum of Understanding with the Canadian Chemical Producers' Association, which had expired in 1998. This five-year agreement was signed in April 2001. Although this EPA was signed prior to the release of the EPA Policy Framework in June 2001, it meets the principles and criteria outlined in the framework. The objective of the agreement is to reduce releases of chemical substances through the Canadian Chemical Producers' Association's Responsible Care® program. Annexes with more specific reduction targets will be added to this EPA over time. Currently, there is an annex dealing with reductions in VOC releases. The VOC Annex commits member companies to reduce releases of VOC emissions by 25% below 1997 levels by 2002. **Update**

Environment Canada—Ontario Region, the Screen-printing and Graphic Imaging Association and the screen-printing sector in Ontario are negotiating a five-year EPA. The agreement will commit the Screen-printing and Graphic Imaging Association to providing EMS training to 50 screen-printing facilities in Ontario by December 2008 in order to reduce the use of VOCs by at least 20%, based on the amount of VOCs used during 2000, and to reduce the use of other substances of concern, hazardous waste, energy consumption and water usage. **New**

For more information on any of these EPAs, please visit the website at <http://www.ec.gc.ca/epa-epe>.

The Canadian Industry Program for Energy Conservation (CIPEC) represents more than 5 000 companies and reports on approximately 95% of total industrial energy demand through 25 task forces. CIPEC's aggregate target is a 1% overall improvement in industrial energy intensity per year through to 2005. For the period 1990–2001, mining, manufacturing and construction subsectors achieved an average annual energy intensity improvement of 1.8% and reduced their GHG emissions related to energy use to 8.4% below 1990 levels. Total fuel savings for 2001 amounted to \$2.8 billion. Building on CIPEC, Natural Resources Canada is working with industry through the Industrial Energy Innovators Initiative to explore energy efficiency options and strategies. For more information, visit the CIPEC website at <http://oee.nrcan.gc.ca/cipec/ieep/cipec/index.cfm>. **Update**

The Energy Innovators Initiative encourages commercial businesses and public institutions to become more energy efficient and reduce their GHG emissions, which contribute to climate change. Over 1 000 organizations representing more than 27% of commercial and institutional sector floor space have been recruited as innovators. In 2002–2003, the Energy

Innovators Initiative provided financial incentives to 59 retrofit projects for a total expected energy savings of about 1.8 million gigajoules or GHG emission reduction of 0.155 megatonnes. These projects are expected to save over \$20 million in energy bills annually. **Update**

Industry Canada participated as a member of the Government Advisory Panel to the Vinyl Council of Canada Environmental Management Program. The program incorporates a number of management practices and performance measures, which make it an ideal stepping-stone to initiating an ISO14001 registration. Consisting of six guiding principles, five commitment areas and a series of practical action steps, the Environmental Management Program is designed with P2 as its overall objective. The Vinyl Council of Canada issued its third annual report of the Environmental Management Program in December 2002. The Canadian Plastics Industry Association is now in the process of adopting a similar program that would be applicable across the plastics industry. For more information, visit the Vinyl Council of Canada website at <http://www.plastics.ca/vinyl>. **Update**

Sector-Specific Initiatives

Agriculture and Food

With partial financial assistance from Environment Canada—Ontario Region, commercial-scale testing of fish cage manure collectors was undertaken and completed in 2002. The results demonstrate a reduction in discharges of phosphorus and solid waste. Other P2 efforts include the testing of low-pollution feed formulations for farmed rainbow trout. Laboratory feeding trials indicate that the new feed formulations will result in a decrease in nutrient input into lakes and streams compared with traditional rainbow trout feeds. Problems with commercial-scale production of the new formulations, largely due to old feed manufacturing equipment at the feed company, is delaying commercial availability of the new formulations. The feed research has been carried out by the collaborative efforts of Martin Mills Inc., Aquacage Fisheries and the University of Guelph, with support from provincial and federal government departments and agencies, including Environment Canada and Fisheries and Oceans Canada. **Update**

With financial and technical support from Environment Canada, a pilot project was conducted for a second year in Prince Edward Island's Bedeque Bay, to determine whether daily, specific spray advisories to farmers would influence pesticide spraying decisions. Seventeen farmers received, by fax or e-mail each morning throughout the growing season, a weather forecast of conditions for three-hour intervals throughout the day. As well, they received a corresponding spraying advisory, with a category of high, medium and low, indicating the probability of either spray drift or rain-induced runoff. An end-of-the-season survey after the second year revealed that 24% of farmers changed their practices based on the information, resulting in a reduced potential for drift and runoff. Post-project evaluation indicated that additional modelling and marketing efforts should be included in future advancements of this project. **Update**

"24% of farmers in Prince Edward Island's Bedeque Bay changed their pesticide spraying practices based on the daily weather reports and spray advisories provided throughout the pilot project, resulting in a reduced potential for drift and runoff."



Environment Canada—Ontario Region developed, on behalf of the Agricultural Adaptation Council, a three-year liquid manure composting technology demonstration project at a 3 000-weaner pig farm. The objective was to demonstrate the merits of the composting system in reducing odours and preventing the contamination of surface water and groundwater and to effectively achieve

GHG emission reductions through new technology transfer. Technology verification used the protocols of the Environmental Technology Verification Canada program. Final results confirmed a minimum reduction of 64% in GHG emissions compared with traditional manure management practices. For the participating farm, the annual reduction was 350 tonnes of carbon dioxide equivalent. **New**

As part of its ongoing effort to reduce the number and amount of manure spills and runoff, Environment Canada—Ontario Region continues to monitor spills and raise awareness about the water quality concerns related to manure/nutrient management on farms. In 2003, the department again conducted watershed-based farm visits in priority areas across the province. This year, farmers in subwatersheds of the Niagara River and St. Lawrence River Areas of Concern were visited by compliance promotion staff. Staff distributed brochures on reducing nutrient loading to fish habitat, including an updated version of Manure, Farming and Healthy Fish Habitat, Issue 1. In addition to distributing water quality information, staff also surveyed farmers to characterize the agricultural watersheds and develop the most appropriate solutions to the water quality problems generated by livestock farms. **New**

In 2003, a multistakeholder workshop on fish plant effluents and sustainability issues was held in New Brunswick. The workshop was hosted by Fisheries and Oceans Canada, in partnership with Environment Canada, New Brunswick Department of Environment and Local Government and New Brunswick Department of Agriculture, Fisheries and Aquaculture, and was attended by over 100 participants. The topics covered included in-plant waste minimization, effluent technologies, opportunities for by-product recovery and nutrient issues, as well as an understanding of the receiving environments where effluents are released. The outcome of the workshop underscored the need for a better

understanding of the problems the industry presents, the opportunities for in-plant improvements, treatment technology adaptation and refinement and P2 opportunities. **New**

Automotive

Now in its 10th year, the Canadian Automotive Vehicle Manufacturing Pollution Prevention Project has a goal of producing verifiable reductions of persistent toxic substances as well as other contaminants used, generated or released in automotive manufacturing facilities. The project is an industry—government cooperative partnership involving the Canadian Vehicle Manufacturers' Association (including DaimlerChrysler, Ford and General Motors), Environment Canada and the Ontario Ministry of the Environment. A combination of techniques has reduced and/or eliminated at the source more than 404 000 tonnes of toxic chemicals and other substances of concern during the life of this project. Negotiations continued with Environment Canada and the Ontario Ministry of the Environment for a new voluntary agreement that will build P2 targets into the ISO14001 EMS platform. For more information, visit the Canadian Vehicle Manufacturers' Association website at <http://www.cvma.ca/Programs/Pollution.html>. **Update**

The Collision Industry Action Group has developed a national Internet-based training program for autobody repair shops. The Project STAR environmental training course, "Profit from Good Environmental Management," is accessible to approximately 2 800 facilities in Ontario. The training program focuses on the benefits of reducing wastes, particularly VOCs, from autobody facilities, by going beyond compliance. The project is an industry—government cooperative partnership involving Environment Canada, the Ontario Ministry of the Environment, the Collision Industry Action Group, the Canadian Automotive Institute and

members of the Canadian Paint Coatings Association. For more information, visit the Collision Industry Action Group website at <http://www.ciaa.com>. **Update**

Under Natural Resources Canada's EnerGuide for Vehicles initiative, vehicle manufacturers voluntarily attach an EnerGuide label to new vehicles sold in Canada. The label helps consumers select the most fuel-efficient vehicle for their needs by giving the vehicle's fuel consumption rating and estimated annual fuel costs. In 2002, Natural Resources Canada distributed 430 000 copies of the Fuel Consumption Guide to vehicle dealerships and recruited one new vehicle manufacturer (Mitsubishi) to the initiative. For more information, visit the EnerGuide for Vehicles website at <http://www.see.nrcan.gc.ca/vehicles>. **Update**

The Natural Gas for Vehicles Initiative provides a financial incentive for the purchase of vehicles capable of operating on natural gas. Over 1 600 vehicles have been funded since 1999. The terms and conditions of the Program expire March 31, 2004 and Natural Resources Canada is currently working on realigning the program based on consultations with industry stakeholders and on a market assessment.

The Switch Out program is Canada's first program to address mercury use in vehicles and the release of mercury when vehicles are recycled at their life's end. Building on the initial success of Pollution Probe's pilot project, the Switch Out program has almost 200 automobile recyclers participating voluntarily in six Canadian provinces. In 2003, the Clean Air Foundation hopes to collect 75 000 mercury switches nationally and expand the program to two more provinces. With the support of Environment Canada, all mercury collected through the Switch Out program is recycled into products with end-of-life take-back programs, thus preventing re-emission of mercury to the environment through poor disposal

practices. The Clean Air Foundation is encouraging the development of permanent disposal options for mercury in order to completely remove mercury from commerce. For more information, visit the Clean Air Foundation website at <http://www.switchout.ca/>. **Update**

Building Design

A Green Building Network has been established by Public Works and Government Services Canada. This network consists of a partnership between the British Columbia Building Corporation, the Greater Vancouver Regional District, Environment Canada and other federal, provincial and municipal organizations. The network advocates environmentally responsible and healthy buildings, sharing knowledge and expertise in green building/sustainable construction and raising environmental awareness. Members of the network have the opportunity to participate in lunchtime presentations, tours, training and workshops on Green Building projects, technologies, products and building assessment tools. **New**

Industry Canada has undertaken a multidisciplinary initiative in partnership with Greater Vancouver Regional District and the private sector to design and develop a working prototype of a sustainable building, affordable within current market constraints. One objective of the prototype design is the reduction of the pollutants normally associated with building construction and operation. During 2002–2003, work began on the adaptation of the design to the requirements of housing for the 2010 winter Olympics. **Update**

Industry Canada, through the Intelligent Buildings Technology Roadmap, is helping to overcome some of the challenges associated with implementing intelligent building technologies. These technologies, if adopted, would lead to improvements in energy efficiency and indoor air quality.

"The Switch Out program is Canada's first program to address mercury use in vehicles and the release of mercury when vehicles are recycled at their life's end."



The Intelligent Buildings Council was created to address the challenges facing the adoption of this technology, along with five task force teams with members from industry and government organizations. With additional funding from Public Works and Government Services Canada, a Best Practices Guide was developed in 2002, and planning for a 2003 Summit is under way. **Update**

Western Economic Diversification Canada is supporting the Geothermal Subdivision project in Wawanessa—Manitoba's first housing subdivision using Ground Source Heat Pumps for heating and cooling. The net GHG emission reductions from this single 13-home subdivision will be 52 tonnes each year. Energy savings for each house will be approximately \$1 000 per year. Also in 2002–2003, the Rural Municipality of McCraney's in Saskatchewan received the support of Western Economic Diversification Canada to implement geothermal heat in one of its municipal buildings. **New**

Chemical

The PCI Chemicals Canada Company plant in New Brunswick produces chlorine, caustic soda, sodium chlorate and hydrochloric acid. These chemicals are used in many industrial applications, including pulp and paper, plastic production and food processing. In 2001, at the company's request, the Atlantic Canada Opportunities

Helpful Environmental Business Information

To view the P2 capabilities of Canada's best technology and service firms, visit the Canadian Environmental Solutions website at <http://strategis.ic.gc.ca/ces>. Developed by Industry Canada, Canadian Environmental Solutions addresses environmental problems related to water, air, soil, energy, climate change and research and development. It is a direct link to solutions and the Canadian companies supplying them. Canadian Environmental Solutions works because it is extensive—it describes 2 000 environmental problems and solutions, along with more than 900 solution-providing companies.

Agency provided assistance in undertaking a P2 evaluation. A study was conducted on the efficiency of the plant's operations, and improvements were recommended in energy efficiency, operation controls, solid waste reduction and effluent reduction and elimination. The PCI has implemented a number of recommendations, including improved energy usage, reducing the risk of a potential chlorine release to the environment, reducing inadvertent mercury vapour releases and reducing water consumption and effluent water releases to the environment. **Now**

Construction

Natural Resources Canada's International Centre for the Sustainable Development of Cement and Concrete promotes the use of EcoSmart™ concrete. This concrete has the potential to substantially reduce emissions of carbon dioxide by substituting fly ash and other materials for the Portland cement traditionally used in concrete. Fly ash is a by-product of coal-burning power

plants and is normally destined for landfill. Replacing 1 tonne of cement with 1 tonne of fly ash offsets industrial carbon dioxide emissions by approximately 1 tonne, in addition to providing a use for an industrial by-product. The EcoSmart project has contributed directly to overall fly ash replacement levels in concrete in the Vancouver area, increasing from 15% to 25% over the past three years. The success of this technology has led the department to partner with the Canadian International Development Agency (CIDA) for purposes of transferring the technology to developing countries. Through the Canada Climate Change Development Fund (managed by CIDA), a project is under way in India between the International Centre for the Sustainable Development of Cement and Concrete and the Confederation of Indian Industry. The project aims to build the capacity of key Indian stakeholders to effectively employ this technology across India. For more information on the technology, visit the EcoSmart™ concrete website at <http://www.ecosmart.ca>.

Update

Natural Resources Canada's Commercial Buildings Incentive Program provides financial incentives to building owners who construct buildings that are at least 25% more energy efficient than similar buildings constructed to the Model National Energy Code for Buildings. In 2001–2002, 79 new buildings received support. Since the program started, 255 new buildings have received support, resulting in an annual reduction of 50 kilotonnes of carbon dioxide emissions. On average, Commercial Buildings Incentive Program buildings are 34.4% more energy efficient than similar buildings built to the current energy code. Similarly, Natural Resources Canada manages the R-2000 Standard, which encourages the building of energy-efficient houses that exceed by 30% the efficiency

"EcoSmart concrete has the potential to substantially reduce emissions of carbon dioxide by substituting fly ash and other materials for the Portland cement traditionally used in concrete."



level required by current Canadian building codes. In 2002–2003, Natural Resources Canada trained one new tract builder⁶ and updated 80% of previously trained builders, along with training eight new builders. In 2002, 421 homes were built to the R-2000 Standard. As of November 2003, 284 homes have been certified. For more information, visit the Office of Energy Efficiency website at <http://oee.nrcan.gc.ca>. **Update**

New Brunswick highway engineers, with the support of Transport Canada, Environment Canada and other government partners, are designing options to minimize the disturbance of acid-producing rock. Four sites with a total of one million tonnes of potentially disturbed bedrock have been addressed. Through design modifications, the bedrock amount disturbed was reduced by approximately 50%, one-half with appropriate mitigation for the residual disturbed material. Similarly, in Nova Scotia, industrial and commercial development often disturbs bedrock, which in specific geologies may create acidic leachate deleterious to receiving waters. A recent study on disposal of this material in marine waters indicates that the acidification process is quite dormant, and no evident effects have been identified

⁶ Tract builder is generally identified as a builder that builds 100 or more homes a year.

after 10 years and disposal of several million tonnes. This disposal activity eliminates the need for chemical usage associated with leachate treatment and costly on-land treatment/disposal requirements of a material normally considered deleterious when disturbed. This combination P2/pollution control effort has significantly reduced the environmental impact of development on acid-sensitive lands in Nova Scotia. **New**

Dry Cleaning

Environment Canada's Wet Clean Demonstration Project utilizes new technology to reduce the use of detergents in wet cleaning. Traditional wet cleaning serves as a replacement for dry cleaning, which uses toxic tetrachloroethylene. Yet, traditional wet cleaning produces a different type of pollution problem—detergents that are sources of phenols and biological oxygen demand. The demonstration project carried out at Our Cleaners in Barrie, Ontario, realized a 6% reduction in energy use over the last year while increasing the volume of clothing cleaned by 7%. Detergent consumption has decreased a further 15%.

Update

The Canadian Centre for Pollution Prevention undertook a survey of practices in the Ontario dry cleaning industry with the support of Environment Canada—Ontario Region. A primary goal of the survey was to establish the extent of green cleaning among Ontario dry cleaners and progress made since the end of the Green Clean Project. The survey established that many Ontario dry cleaners are taking small measures, such as improving operating practices, modernizing equipment, changing dry cleaning solvents or initiating recycling programs with the intent of protecting the environment of the communities in which they operate. Also, a Green Dry Cleaning website was developed

containing an online directory of Ontario dry cleaners that provide green cleaning options for their customers. For more information, visit the Green Dry Cleaning website at <http://www.c2p2online.com/greendrycleaner>.

New

Forestry and Wood Products

Through funding from Natural Resources Canada, the Forest Engineering Research Institute of Canada has created the Star Truck⁷ Project to improve the fuel efficiency of forest product transportation trucks. Project results show a net reduction in truck weight of up to 3.2 tonnes. The lower tare weight and other savings achieved by the Star Truck Project reduce the haul costs by \$1 per tonne. In the case of Tembec's Nouvelle plant's overall operations, which are considered mid-size (hauling 312 000 tonnes per year), the annual savings would be about \$312 000. The Forest Engineering Research Institute of Canada also studied the potential for multiuse trailers for carrying various types of products. The structure of the forest industry in Canada is such that there is a requirement for different types of trucks to go from one mill to another, with trucks wasting significant amounts of fuel running without loads. Multiuse trailers would minimize this problem and could save up to 12 000 litres of fuel per year. For more information, visit the Natural Resources Canada website at http://oee.nrcan.gc.ca/fleetsmart/caseStudies/caseStudies_forestry.cfm?PrintView=N&Text=N. **New**

Natural Resources Canada's Canadian Forest Service is supporting a variety of programs across Canada aimed at reducing pesticide use, including mechanical avenues (e.g., integrated application technology, minimizing off-target deposit when treating priority stands), the development of physical

"The lower tare weight and other savings achieved by the Star Truck Project reduce the haul costs for forest products by \$1 per tonne."



Photo © COREL Corporation

alternatives to chemical pesticides (e.g., a spruce budworm pheromone product for use in early-intervention strategies) and the development of biological control tools (e.g., an integrated program for control of sawfly forest pests to determine the impact of naturally occurring microbial pathogens [fungi, bacteria and viruses] as possible control agents, the use of mushroom entomopathogens against forest defoliators and agents for use against the gypsy moth). For more information on such activities, visit the Canadian Forest Service website at http://www.nrcan-rncan.gc.ca/cfs-scf/index_e.html.

With increased emphasis on the development of natural and biological materials as alternatives to chemical pesticides, Natural Resources Canada's Aquatic Ecology and Ecotoxicology Study is examining the effects of these alternatives on aquatic organisms and ecosystems, the effects of genetically engineered insect viruses in aquatic systems and the effects of alternatives to forest clear-cutting on habitat and biota of headwater streams, in order to ensure that the alternative practices are in fact providing significant environmental protection. For more information on the

Star trucks are specifically designed for the task they will be working on. Therefore, there is not one star truck but as many star trucks as there are hauling conditions

study, visit Natural Resources Canada's Aquatic Ecotoxicology website at http://www.glfc.cfs.nrcan.gc.ca/science/research/aquaticecoto_e.html#top. **New**

Significantly, Natural Resources Canada also supports the development of a decision support system for pest and forest management planning, integrating scientific research results, resource management information, computer models and government information system technology, thereby reducing pesticide use and optimizing forest protection/production. Training programs on integrated pest management techniques are available to field technicians and practitioners. **New**

Environment Canada—Prairie and Northern Region is the national lead on the wood preservation strategic options process. One of the actions under the process is to have all 66 wood preservation facilities across Canada adopt a standard operating guideline. The guideline describes in detail P2 activities that minimize releases of treatment chemicals containing CEPA-toxic substances, including training on spill prevention. A voluntary implementation program was initiated in 2000, and most facilities in Canada have made significant progress towards compliance with the guideline. The goal of the program is to have all facilities compliant by 2005. Environment Canada—Prairie and Northern Region is working with the Canadian Institute of Treated Wood on the implementation program. **New**

Environment Canada—Quebec Region, along with industry and government stakeholders, supported the establishment of the first wood treatment plant in North America that uses heat instead of chemicals. The high-temperature heat treatment sterilizes the wood, destroying any parasites that may be present. This technology will provide the treated wood industry with an alternative to wood treated with chromated copper arsenate, creosote and pentachlorophenol, enabling it to comply with increasingly stringent environmental requirements. **New**

Health Care

The Healthcare EnviroNet website was established with support from Environment Canada—Ontario Region and is developed and maintained by the Canadian Centre for Pollution Prevention in consultation and partnership with health care and non-government organizations. The website shows health care staff how to take action to reduce their facilities' environmental impact in areas such as green procurement, sustainable building design and P2 planning. For more information, visit the Healthcare EnviroNet website at <http://www.c2p2online.com/healthcare>.

In keeping with CCME's goal of cost-effective actions to minimize releases of mercury and its compounds, a Canada-wide Standard for reducing environmental releases of dental amalgam has been developed. The removal of old fillings and the shaping/polishing of new fillings generate a mercury-containing waste when amalgam particles are vacuumed from the mouth and discharged to sewage systems. The Canada-wide Standard seeks to significantly improve the capture of amalgam wastes through best management practices. Best management practices include the use of an ISO-certified amalgam trap, or equivalent, and appropriate management of waste so mercury does not enter the environment. The standard is intended to achieve a 95% national reduction in mercury releases from dental amalgam waste discharges to the environment by 2005, from a base year of 2000. For more information, visit Environment Canada's Mercury and the Environment website at <http://www.ec.gc.ca/mercury>. **Update**

In 2002–2003, Health Canada's First Nations and Inuit Health Branch funded the replacement of mercury-containing equipment such as thermometers and blood pressure machines with non-mercury alternatives. The Branch also hired a consultant to perform environmental audits at the following

Health Canada hospital facilities: Weeneebayko General Hospital, Percy E. Moore Hospital and Norway House Hospital. **New**

"The Canada-wide Standard for reducing environmental releases of dental amalgam is intended to achieve a 95% national reduction in mercury releases from dental amalgam waste discharges to the environment by 2005, from a base year of 2000."



Photo: Marc Bouchier 2002

Information Technology

Environment Canada, Natural Resources Canada, Industry Canada, provincial and territorial environment ministries and other stakeholders are jointly working together to assist the Information Technology Association of Canada and Electro-Federation Canada with the development of a National Extended Producer Responsibility program for collection and recycling of obsolete consumer electronic products (specifically, personal computers, laptops, printers and televisions). A not-for-profit industry stewardship organization, Electronics Product Stewardship, was established to address the end-of-life management of information technology and consumer electronics products in Canada. This initiative aims to reduce the quantity of toxic substances (such as mercury, lead and cadmium) that are frequently released into the environment from obsolete electronic consumer products. Electronics Product Stewardship released its business

"The CleanMarine Eco-Rating Certification Project aims to certify 150 marinas in Ontario and rate them based on their environmental performance."



Photo: © COREL Corporation

plan in the summer of 2003. The plan incorporates feedback and input from multistakeholder consultations. Other key partners engaged in this project include the National Research Council and Health Canada. **Update**

Marinas/Harbours/Shipyards

The CleanMarine Eco-Rating Certification Project is a three-year agreement between the Ontario Marine Operators Association, the Ontario Ministry of the Environment and Environment Canada to certify 150 marinas in Ontario and rate them based on their environmental performance. Participants are provided with a CleanMarine Best Management Practices Handbook. Marinas are audited for their performance and awarded an achievement rating. Marinas participating in the program must be committed to continuously improving their environmental practices and performance each year. Certified marinas are identified and listed in the Ontario Marina Directory. The certification program was developed with input from various steering committee members from the CleanMarine Partnership, which includes representatives from the boating industry, associations, media and government agencies and TerraChoice Environmental Services Inc. To date, 100 Ontario marinas have been audited for their environmental best management practices, and an additional 50 marinas will

be audited in 2003. For more information, visit the Ontario Marine Operators Association website at <http://www.omoa.com>. **Update**

Fisheries and Oceans Canada established and implemented environmental management plans for 581 of 664 client-managed small-craft harbours. An environmental management plan's purpose is to identify all harbour activities and operations that might have potentially negative impacts on the environment and outline a plan to manage the operations and activities in such a way as to reduce these impacts. As a spill prevention measure, waste oil is being collected and recycled at 27 client-managed harbours. For more information, visit Fisheries and Oceans Canada's Small Craft Harbours website at http://www.dfo-mpo.gc.ca/sch/home-accueil_e.html. **Update**

Metal Finishing

The Metal Finishing Industry Project is a partnership between Environment Canada and the Ontario Ministry of the Environment, the Canadian Association of Metal Finishers and related industry associations that began in 1993. The project's goals are to develop tools for formulating P2 plans for reduction of toxic substances, promote development and implementation of site-specific P2 plans, demonstrate the benefits associated with P2 planning and publish the progress of substance use reductions under the plans. The task force released its Ninth Progress Report in January 2003. There are 27 metal finishing companies participating in the project, with 58 documented case studies. In addition, the task force has developed a Metal Finishing P2 Technologies Manual, which provides brief descriptions of P2 technologies available to the industry. For a copy of the report or manual, visit the Canadian Association of Metal Finishers website at <http://www.camf-acfm.com>. **Update**

Mining

Natural Resources Canada co-leads a North American consortium aimed at bringing hydrogen fuel cells to underground mining operations. One of the major benefits of this technology for underground mining is pollution-free exhaust, contributing to improved worker health and safety and the elimination of GHG emissions. The long-term target for this work is the retrofitting of underground mining vehicle fleets, currently powered by diesel fuel, with hydrogen fuel cell technology. The department is currently working on establishing hydrogen production and delivery protocols. It is estimated that by 2007, fuel cell vehicles will be designed and manufactured. The minimum quantity of carbon dioxide emission reduction for replacing all underground diesel vehicles (approximately 3 200 units) in metal mines alone is 1.0 million tonnes. While this reduction is relatively small, it represents approximately 26% of all emission produced by the underground and open pit primary extraction sector in Canada, which is 3.6 million tonnes. With this change alone, the Canadian extraction sector would meet its Kyoto targets. **Update**

Natural Resources Canada is also heading a project to develop a narrow-vein mining system that would mine only the veins and leave surrounding rock in place using thermal fragmentation technology. This system will substantially reduce the use of chemical explosives and the transport of ore. It can be used in open pit and underground mining. In 2002–2003, the department evaluated the performance of the technology on the surface and actively participated in organizing underground testing for 2003–2004. Efforts are also under way to develop a small hybrid diesel-electric scooptram for narrow-vein mines. One of the major benefits of this technology is the significant reduction in emissions from underground mining vehicles by using a smaller, continuously operating diesel engine combined with a high-performance filter, thereby improving worker health

while significantly reducing GHG emissions. Eventually, the small diesel engine could be replaced by a fuel cell. **Update**

Another technology under development reduces energy consumption associated with mine ventilation. Electricity for ventilation represents approximately 40% of the electrical energy required for underground mine production. Ventilation on demand identifies when air is required, where it is required and at what level. One study with a specific industrial client has shown that the air delivery of the primary ventilation system could be reduced 30–40% of the time, and operation of the secondary distribution system could be reduced 60–70% of the time. **Update**

CANMET Mining and Mineral Sciences Laboratories of Natural Resources Canada coordinates a government-industry Thiosalts Consortium aimed at developing innovative technology for the prevention, treatment and monitoring of thiosalts. Thiosalts are produced during the processing of sulphur-rich ores, and they are discharged from the mill as dissolved compounds in the process water. The degradation of thiosalts within the surface waterways could potentially cause increased acidity in the receiving aquatic environment, which may affect fish.

"During 2002, the CANMET Materials Technology Laboratory successfully completed full-scale stress and corrosion cracking testing of line pipe."



Examples of techniques used to prevent thiosalts from generating acidity include bacterial oxidation of thiosalts and oxidation using hydrogen peroxide. Research has helped to increase understanding of technical issues associated with the natural degradation and analysis of thiosalts. The mining industry is using the results from our studies to comply with permit discharge regulations for the effluent at mine sites. **Update**

Natural Resources Canada's Mine Environment Neutral Drainage Initiative continues to contribute to the understanding and prevention of acidic drainage and metal leaching under neutral or alkaline conditions. In 2003, several projects are under way in the areas of closure management, technology verification, neutral metal leaching and sludge management. Environment Canada, several provincial governments and the Mining Association of Canada, along with a number of mining companies and non-government organizations, have participated in this initiative. For more information, visit the Mine Environment Neutral Drainage website at <http://www.nrcan.gc.ca/mms/canmet-mtb/mmsl-lmsm/mend/>. **Update**

Oil and Gas

Natural Resources Canada, through the CANMET Materials Technology Laboratory, researches the management of oil and gas pipeline corrosion. This work helps industry reduce the incidence of oil and gas leaks. During 2002, the laboratory successfully completed full-scale stress and corrosion cracking testing of line pipe. This research is in high demand for pipeline systems design in environmentally sensitive northern regions. **Update**

For 10 years, Environment Canada—Atlantic Region, along with Transport Canada and the Canadian Coast Guard, have provided P2 information to oil tankers stopping in

Newfoundland ports. Information is provided by personnel hired by Environment Canada, who visit the ships and provide information to the most appropriate officer. In 2003, this program was expanded to oil tankers visiting Nova Scotia ports. **Now**

Printing and Graphics

CleanPrint Canada is a P2 project that works with printing and graphics firms, associations and other governments to reduce and/or eliminate the use, generation and release of toxic substances and other substances of concern. Environment Canada is a leader and funding participant in various regional organizations within CleanPrint Canada. For instance, this past year, CleanPrint British Columbia saw an additional four facilities complete the environmental management plan process, with an estimated annual reduction and savings of up to 99% in the use of isopropyl alcohol for some operations, more than 1 000 litres of reduced solvent use overall, up to 10% reduction in the use of ink at one operation, an overall solid waste reduction of more than 800 cubic metres and close to \$200 000 in savings and earnings as a result of reduction and recycling activities. Long-term project goals include reduction of VOC emissions from printing in the Lower Fraser Valley to 20% of 1985 levels by 2005; reduction of silver and VOC discharges to the Capital Regional District sewer system by 50%; and contribution to a 50% reduction in municipal solid waste in British Columbia. For more information, visit the CleanPrint Canada website at <http://www.cleanprint.org>. **Update**

The Government of Canada's printing needs are serviced entirely by the Office of Information Products and Services. In 2002–2003, the lithographic printing services were certified by the Environmental Choice Program, conforming with the environmental performance standards established by the Government of Canada under Canada's National Guidelines on Lithographic Printing Services. These standards are

intended to ensure the environmental integrity of printing processes through reductions in toxic emissions, reductions in wastewater loadings, reductions in the quantity of materials sent to landfills and the implementation of resource conservation procedures. The paper used inside these documents conforms to Canada's National Printing and Writing Paper Guideline and/or Uncoated Mechanical Printing Paper Guideline. These guidelines set environmental performance standards for fibre use efficiency, chemical oxygen demand, energy use, global warming potential, acidification potential and solid waste. **Update**

"In Ontario, over 200 campgrounds have participated in Camp Green, Canada!^{OM} by promoting the benefits of using non-toxic holding tank products."



Tourism

Camp Green, Canada!^{OM} encourages recreational vehicle owners and boaters to use non-toxic products instead of formaldehyde-based products in their sewage holding tanks. Nova Scotia was the first province in Canada to embrace unified promotion of biological treatment alternatives. In 2001, the Camp Green, Canada!^{OM} campaign was launched for public and private campgrounds across the country. The program is now established in the Atlantic, Quebec, Ontario and B.C. regions, with other regions showing interest. Environment Canada, along with

Parks Canada, the Ontario Private Campground Owners Association, the Tourism and Industry Association of Nova Scotia, Campground Camping Canada and KOA Campgrounds, continues to support and promote the program. In Ontario, over 200 campgrounds have participated by promoting the benefits of using non-toxic holding tank products. Designation of federal, provincial and private campgrounds as chemical free is ongoing. For more information, visit the Camp Green, Canada!^{OM} website at <http://www.tians.org/campgreencanada/>. **Update**

Western Brook Pond is located in the 1 805-square-kilometre Gros Morne National Park, a UNESCO World Heritage site on the western side of Newfoundland. The boat tour on Western Brook Pond attracts 25 000 sightseers to the park annually. The pressure on the ecosystem from the influx of tourists motivated Parks Canada in 2002 to make ISO14001 certification a mandatory component of operating the concession. As a result, in 2002, Norock Associates, on behalf of Bontour Voyages, developed an EMS, and Bontour was the first tour boat operator in the world to be certified ISO14001 compliant. P2 initiatives resulting from the EMS include water conservation, enhanced fuel spill prevention and improved maintenance of washroom fixtures. The operator was awarded the Hospitality Newfoundland & Labrador Sustainable Tourism award in 2002. **New**

Transportation

The Commercial Vehicles Initiative, formerly FleetSmart, is intended to improve the fuel efficiency, reduce GHG emissions and promote the use of alternative fuels in commercial road transportation fleets. Natural Resources Canada provides training and materials to more than 149 000 new and experienced fleet operators and introduced over 1 000 new instructors to the Commercial Vehicles Initiative. For more information, visit the

Office of Energy Efficiency website at <http://oee.nrcan.gc.ca>. **Update**

Transport Canada's Freight Efficiency and Technology Initiative is a five-year initiative under Action Plan 2000 on Climate Change designed to reduce the growth of GHG emissions from the freight transportation sector. Transport Canada leads the \$14 million initiative in cooperation with Natural Resources Canada. The initiative consists of three components: the Freight Sustainability Demonstration Program; the development of voluntary agreements with modal associations; and training and awareness. The initiative is aimed at assisting private companies and not for profit organizations in air, marine, rail and truck freight activities. For more information, visit the Transport Canada website at <http://www.tc.gc.ca/fsdp>.

In November 2002, Transport Canada hosted the second of a series of workshops on operational measures for reducing fuel use by and emissions from the aviation industry in response to the United Nations Framework Convention on Climate Change under the Training and Awareness component of the Freight Efficiency and Technology Initiative. Ninety participants from Canada and around the world attended the workshop. As of March 2003, the Demonstration program funded several projects, mainly related to rail transportation. **New**

Commuter Options: The Complete Guide for Canadian Employers presents practical, proven approaches to increasing the use of active transportation (e.g., walking and cycling), public transit, ridesharing (e.g., carpooling and vanpooling), teleworking and other alternatives that are healthier and less expensive than driving alone to work. The Commuter Options guide and workshop are designed by Transport Canada for use by small, medium-sized or large employers anywhere in Canada, in both the public and private sectors, to help employers develop environmentally friendly means of travelling to work daily. For more

information, visit the Transport Canada website at <http://www.tc.gc.ca/programs/Environment/Commuter/menu.htm>. **News**

Training and Awareness

In 2002–2003, in an effort to promote P2 awareness, the Atlantic Canada Opportunities Agency released several outreach documents, including the agency's commitment to sustainable development. One document, a fact sheet, was created to raise awareness of eco-efficiency and the benefits of operating an environmentally responsible business. The agency also provided assistance to the Environmental Industries Association and supported Lean Manufacturing Workshops in Atlantic Canada. The agency's Environmental Industries Policy is in its final draft, and work on the strategy will follow. **Update**

The Building Sustainable Enterprises initiative supports industry workshops on concepts and tools for implementing eco-efficiency, including Design for the Environment, Life Cycle Management, Environmental Management Systems, Environmental Reporting, Indicators and Supply Chain Management. In March 2003, the second workshop was held in Montreal, attracting approximately 50 participants. Other events are being planned. Industry Canada, Environment Canada, Natural Resources Canada and the National Round Table on the Environment and the Economy participate on the federal Steering Committee. For more information, visit Industry Canada's Building Sustainable Enterprises website at <http://strategis.ic.gc.ca/bse-ced>. **Update**

In an attempt to better develop P2 planning consulting capability in Atlantic Region, particularly with respect to P2 planning notices under Part 4 of CEPA 1999, Environment Canada, in partnership with Nova Scotia Department of Environment and Labour, contracted the Canadian Centre for Pollution Prevention to host a one-and-a-half-day practical training

course for local consultants in March 2003. Participants received both classroom and shop floor training on how to identify and evaluate P2 opportunities and develop those into usable P2 plans. **News**

Small and Medium-Sized Businesses

In 2002–2003, Environment Canada—Ontario Region and the Canadian Centre for Pollution Prevention began work on developing an Ontario-based P2 outreach and communication program for SMEs. This project involved surveying industry associations that represent SMEs to determine what P2 tools their members would find most useful and if additional P2 assistance could be provided to the associations. The project has already grown to a national scale, with the creation of the Canadian Pollution Prevention Roundtable SME Pollution Prevention Workgroup, with members from various levels of government, technical assistance providers and industry associations. A new SME P2 website was created and launched with information on regional SME programs across Canada, P2 and EMS resources, funding opportunities, sector-specific information and regulatory links. A new online training tool is being developed that will provide technical advice to SME managers on evaluating financial benefits of P2 proposals and how to successfully sell these projects to their managers. For more information, visit the Pollution Prevention for Small Business website at <http://www.c2p2online.com/smep2>. **News**

The EnviroclubSM Program was developed by Environment Canada—Quebec Region, with financial support from Canada Economic Development and the National Research Council's Industrial Research Assistance Program, to increase awareness of P2 and environmental management at SMEs. The three first clubs completed in 2001 and 2002 involved 30 SMEs. The in-plant projects allowed recurrent annual savings of \$1.9 million, with recurrent

annual reduction in the following emissions and use of resources: 25 kilotonnes of carbon dioxide equivalent of GHG emissions, more than 40 tonnes of toxic substances (mainly VOCs), 355 000 cubic metres of natural gas, 1.3 million litres of oil products, 51 000 cubic metres of water, 1 000 cubic metres of wood and 219 000 litres of propane. The four Enviroclubs in progress in 2003 involve 50 SMEs. In-plant projects must generate cost savings and reductions in pollution emissions or resource use. Project implementation is assisted by consultants and supported by workshops where SMEs acquire abilities in P2 and environmental management and learn to establish, measure and communicate environmental performance. For more information, visit the EnviroclubSM website at <http://www.enviroclub.ca/>. **Update**

The Toronto Region Sustainability Program is intended to advance the environmental performance of SMEs and manufacturing facilities in P2 and sustainable development. Program objectives include acting to reduce smog precursors and moving to zero generation of toxic wastes. The program is delivered on behalf of Environment Canada—Ontario Region by the Ontario Centre for Environmental Technology Advancement, in partnership with Environment Canada's National Office of Pollution Prevention, Ontario Ministry of the Environment, the City of Toronto and other stakeholders. In the first two years of the program, 27 facilities have completed, or have in progress, P2 assessments, representing the following SME manufacturing sectors: auto parts, chemical specialty, credit card, hospitals, metal finishing, packaging, paint stripping, petroleum products, printing (flexographic plate) and lithographic printing. Each P2 assessment report includes recommendations of subsequent P2 projects that the facility should pursue in order to reduce their pollution emissions. Annual P2 results and savings from the 16 SMEs that have completed the P2 assessments and implemented (or have committed to

implement in the future) the recommendations that were suggested in the P2 assessment reports include 342 tonnes of VOCs, 1.8 kilograms of CEPA toxics, 25 kilograms of heavy metals, 308 tonnes of process wastes, 2.5 tonnes of particulate matter (less than 10 microns), 16.7 grams of mercury recycled, 8 500 tonnes of water and 7 tonnes of GHGs. The average cost savings per SME has been \$75 300. For more information, visit the Ontario Centre for Environmental Technology Advancement website at <http://www.oceta.on.ca/programs/torsus.htm>.

Update

The Business Water Quality Program is a five-year partnership between Environment Canada, the Regional Municipality of Waterloo and the Ontario Ministry of the Environment. The program educates SMEs on the benefits of P2 planning and the toxics reduction provisions of CEPA 1999, with a primary goal of preventing spills to groundwater, surface water and sewers. In 2002–2003, nine facilities completed a facility review and assessment and realized the following: elimination of nonylphenol ethoxylates, ethylene glycol/chlorinated cleaning solvents and phenolic resin filter paper; reduction of paint sludge; GHG equivalent reductions; reduction in biological oxygen demand, suspended solids and phenols in the wastewater effluent; and water use reduction. To date, 23 SMEs have participated in the program. For more information, visit the Ontario Centre for Environmental Technology Advancement website at <http://www.oceta.on.ca/programs/BWQP.htm>.

Update

In early 2003, the Atlantic Canada Opportunities Agency, in partnership with the Burnside Eco-efficiency Centre, conducted eco-efficiency reviews with various businesses in New Brunswick and Nova Scotia. The agency also funded a case study on environmental accounting with a Nova Scotia company.

New

With the financial support of Industry Canada, the Environmental Supply Chain Management Pilot Project is exploring and developing the capacity for supply chain management to reduce GHG emissions in SMEs. The SMEs collectively comprise 43.7% of the Canadian manufacturing industry GHG emissions and typically are suppliers to larger companies. This is a five-year pilot program that began in May 2001 and is managed by Voluntary Challenge and Registry Inc. Two host companies (Shell and Suncor) have been established. In 2002–2003, a successful workshop involving five SME suppliers was held, providing information on climate change and energy efficiency. Following the workshop, the suppliers used the services provided by the Pembina Institute to further develop their GHG reduction strategies. There are plans for additional workshops and engaging more host companies. For more information, visit the Voluntary Challenge and Registry website at http://www.vcr-mvr.ca/index_e.cfm.

Update

In fall 2001, Industry Canada launched "Three Steps to Eco-efficiency," a tool that assists small and medium-sized manufacturers to develop an eco-efficiency program through checklists on self-assessment, strategies and cost-benefit analysis. An automated version of the self-assessment tool was published in April 2003. It allows a company to complete a series of online worksheets that assesses the company's eco-efficiency by business function and creates a graphical representation of the results and potential strategies. A downloadable cost-benefit analysis chart is also provided to assist in developing a strategic action plan. For more information, visit Industry Canada's Eco-efficiency website at <http://strategis.ic.gc.ca/epic/internet/inee-ee.nsf/vwGeneratedInterE/Home>. About 10–20% of the 800 to 1 200 monthly visitors to the eco-efficiency site use the tool.

Update

Labour

Environment Canada supported the Labour Environmental Alliance Society, a British Columbia-based non-profit organization, to deliver the Cleaners, Toxins and the Ecosystem Project. The project delivered nine workshops to a total of 143 participants and follow-up assistance to institutional work sites in order to help them identify toxic cleaning products and replace them with non-toxic alternatives. Many of the participants were representatives from hospitals, schools, long-term care facilities, hotels, restaurants, transit operations, mills and recreational centres. The multiplier effect is estimated to be as high as 100, meaning that the project likely impacted in excess of 14 000 people. More than 20 000 litres of cleaning products containing toxic chemicals have annually been eliminated as a direct result of this project. In addition, one of the indirect results of the project is the implementation of green purchasing policies, including centralized, controlled cleaning product purchasing, for many facilities.

Update

Research and Development

Natural Resources Canada, through the CANMET Materials Technology Laboratory, coordinates the Canadian Lightweight Materials Research Initiative, a government-industry-university partnership whose mandate is to develop low-density, high-strength, lightweight materials to achieve weight reductions in ground transportation vehicles, with the goal of reducing GHG emissions through improved vehicle efficiency. During 2002, the laboratory developed a pilot-scale process for seam-welding aluminum tubes. The first process of its kind in North America, this is a significant advancement in tube hydroforming and should lead to greater use of lightweight metals in transportation vehicles. The laboratory also optimized the heat treatment process for A356, an alloy commonly used in the automotive industry, reducing energy consumption by one-third.

Two foundries have already adopted the shorter heat treatment cycle in their production. For more information, visit the Canadian Lightweight Materials Research Initiative website at <http://climri.nrcan.gc.ca>.

Update

Technology Partnerships Canada is a technology investment fund operated by Industry Canada. It makes high-risk repayable loans in research, development and innovation. In 2002–2003, the fund invested \$132 million in six projects with potential P2 benefits that will leverage an additional \$345 million from other sources. Project areas funded include natural gas-powered diesel engines for trucks, aero-derivative stationary gas turbine engines for power generation, advanced metal refining technology with reduced emissions, advanced materials handling processes and equipment, superior septic tank systems for wastewater treatment, innovative bio-based fertilizers, an energy-efficient grain harvesting system, high energy density batteries for clean transportation and other applications. For more information, visit the Technology Partnerships Canada website at <http://tpc.ic.gc.ca>.

Update

Industry Canada continues to lead the implementation of the Innovation Technology Roadmap on Bioproducts (formerly the Innovation Roadmap on Sustainable Fuels and Chemicals from Biomass). The Innovation Technology Roadmap on Bioproducts will contribute to Canada's climate change objectives by developing bioproduct alternatives and promoting more environmentally friendly bioprocesses, all of which will contribute to reducing energy and GHG emissions. This activity makes it feasible to reach a reduction target of 23 tonnes per year of carbon dioxide equivalent by 2015. For more information, visit Industry Canada's Technology Roadmaps website at <http://www.strategis.gc.ca/trm>.

Update

Atlantic Canada Opportunities Agency's Atlantic Innovation Fund is making strategic investments aimed at increasing Atlantic Canada's innovation capacity. The Fund contributes to projects in the environment sector. These projects involve research in such areas as advanced treatment technologies, monitoring systems and technology that addresses the reduction of GHG emissions.

New

Upcoming Projects

Canadian Heritage is working with Parks Canada in providing financial incentives for the private sector to preserve heritage buildings as part of the Historic Place Initiative. It is expected that this program, the Commercial Heritage Properties Incentive Fund, will reduce landfill volume by encouraging the renovation rather than the demolition of privately owned heritage buildings. Studies suggest that building demolition waste accounts for about 20% of landfill contents. For more information, visit the Parks Canada website at http://www.pc.gc.ca/progs/plp-hpp/plp-hpp2a_E.asp.

In recent years, the Pulp and Paper Research Institute of Canada (Paprican) has received funding from Natural Resources Canada. Paprican, among other things,

studied energy use in pulp and paper mills and identified opportunities to reduce energy use and convert energy sources used in pulp and paper mills from fossil fuel to biomass. The pulp and paper industry has reduced its greenhouse gas emissions from 14 megatonnes/year to 10 megatonnes/year since 1990. It is expected that increased energy efficiency and greater use of biomass could reduce pulp and paper mill emissions by approximately an additional 2 megatonnes. For more information, visit the Paprican website at <http://www.paprican.ca>.

Natural Resources Canada is also funding Forintek Canada Corp (Forintek), Canada's national wood products research institute. One of the projects of Forintek is to study data and knowledge to improve lumber drying techniques. These techniques will result in energy savings and significant greenhouse gas emission reductions. This project will be completed in July 2004 and is partially funded by Natural Resources Canada's CANMET Energy Technology Centre. According to some researchers, the potential reduction in energy use by dry kilns in Canada would be 335 kilotonnes per year in carbon dioxide emissions. For more information, visit the Forintek website at <http://www.forintek.ca>.

Since 1993, the Canadian Environmental Technology Advancement Centres (CETAC) program supports the development, demonstration and deployment of innovative environmental technologies. Enviro-Access, the Ontario Centre for Environmental Technology Advancement and CETAC-WEST are private sector, not-for-profit corporations that operate with funding and operational support from Environment Canada's Environmental Technology Advancement Directorate. In 2002–2003, 140 companies received business-related services from CETAC to advance their technology in the marketplace. Seven technology demonstration projects were organized. Environmental priorities addressed in these projects focused on clean air, climate change, water quality and toxics reduction. Examples of P2 technologies that have received support include a solar water heating system, mobile technology for cleaning of logging and mining equipment and a system to prevent spillage of drilling fluids around well sites. Environment Canada's Environmental Technology Advancement Directorate oversees the CETAC program.

Western Economic Diversification Canada worked with the Western Canada Business Service Network to develop the Sustainable Business On-line Resources website. The site has been scheduled for launch in fall 2003 and is intended to raise awareness of sustainable development practices among SMEs. Western Economic Diversification Canada will also support a project that will see Canada's first high-voltage operational fuel cell installed at the Northern Alberta Institute of Technology. There is also funding for specialized equipment to build a renewable energy test bed and a fuel cell gas flow diagnostic system at the University of Victoria's Institute for Integrated Energy Systems. Fuel cells

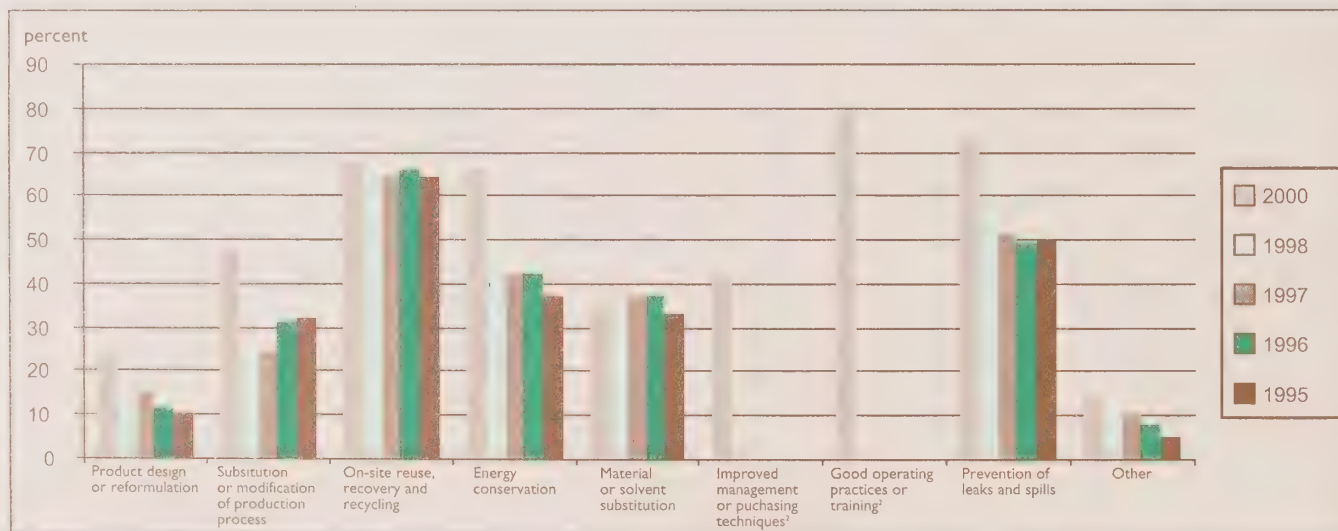
generate electricity directly by chemically combining stored hydrogen with oxygen, producing water and heat their only emissions. Fuel cell-based energy devices will generate substantially less GHGs than many other products currently available.

Statistics Canada, through the Survey of Environmental Protection Expenditures, (SEPE) collects data on the expenditures and practices made by primary and manufacturing industries, electric power and gas distribution facilities as well as pipeline transportation. With the exception of material or solvent substitution, businesses increased their participation in all other P2 categories listed in the figure

below. Almost 80% of businesses reported the use of good operating practices or P2 training², followed by the prevention of leaks and spills (73%), the 3Rs¹ (67%) and energy conservation (68%). In 2000, for the first time, the SEPE asked businesses to indicate if they experienced cost savings due to the implementation of environmental management or P2 practices. Across all industries, 38% of establishments that answered reported experiencing cost savings in 2000. The Oil and Gas Extraction Industry had the largest proportion of establishments (75%) reporting cost savings, while businesses in the Logging Industry were least likely to report cost savings (17%).

Update

Use of Pollution Prevention Methods, 1995–2000¹



Notes:

This figure includes reported data only. The Survey of Environmental Protection Expenditures was not conducted in 1999.

1. Number of establishments indicating that they used the P2 method as a percentage of all establishments that provided a response.

2. Data available only for 2000.

Source:

Statistics Canada, Environment Accounts and Statistics Division.

Good operating practices or P2 training and improved management or purchasing techniques were added for the first time on the 2000 Survey of Environmental Protection Expenditures questionnaire
"3Rs" refers to on-site reuse, recovery and recycling

The following table summarizes the linkages to programs and initiatives undertaken in P2 under the federal government's action plan on P2 with the private sector.

Tracking Progress Against Pollution Prevention—A Federal Strategy for Action

Goal: Achieve a climate in which P2 becomes a major consideration in industrial activities.

Actions	Status	Examples
1. Develop innovative P2 programs.	Ongoing	<ul style="list-style-type: none"> Mercury Switch Out Program CleanPrint Canada Commercial Buildings Incentive Program Camp Green, Canada!^{OM}
2. Promote P2 through refocused research, development and demonstration initiatives.	Ongoing	<ul style="list-style-type: none"> Wet Clean Demonstration Project Canadian Lightweight Materials Research Initiative Sustainable Fuels and Chemicals from Biomass Intelligent Buildings Technology Roadmap Star Truck Project
3. Promote the adoption of sustainable production in industrial and manufacturing processes.	Ongoing	<ul style="list-style-type: none"> EcoSmart Concrete Canadian Vehicle Manufacturing Pollution Prevention Project Metal Finishing Industry Project Extended Producer Responsibility in the waste associated with information technology
4. Implement economic instruments that will result in P2.	Ongoing	<ul style="list-style-type: none"> Methyl Bromide Emission Permit Trading System
5. Help SMEs improve their environmental performance.	Ongoing	<ul style="list-style-type: none"> Enviroclub^{OM} Toronto Region Sustainability Program Environmental Supply Chain Management Pollution Prevention for Small Business Website Canadian Pollution Prevention Roundtable SME Pollution Prevention Workgroup

Progress with the Canadian Public

Federal pollution prevention strategy goal: Provide access to the information and tools necessary to implement pollution prevention practices.

Citizen-Driven Activities

Atlantic Coastal Action Program (ACAP) is a community-based program created by Environment Canada as a means of mobilizing local communities to address their own environmental and developmental challenges. Some examples of 2002–2003 ACAP projects appear below:

- Newfoundland and Labrador communities have been struggling with water shortages for years, but they also consume an average of 450 litres of water per person per day, higher than the national average of 350 litres. With financial support from Eco-Action, ACAP Humber Arm Environmental Association Inc. is implementing a pilot water conservation project in the community of Massey Drive, near Corner Brook, Newfoundland, to reduce overall water consumption by 20% through the provision of retrofit kits (which consist of items such as faucet and showerhead flow reducers, toilet bags to reduce volume of water in the toilet tank, shower flow meter, dye tablets and a dripping water gauge) to 75% of homeowners. Also, 75% community participation is expected in public education events or forums. Project information will be distributed to at least 50 communities throughout Newfoundland and Labrador.
- With financial support from Eco-Action, ACAP Cape Breton, Nova Scotia, undertook a water conservation program to address water usage in the Cape Breton Regional Municipality, estimated at twice the national average. A credit program for installing low-flow toilets is in effect, which credits 200 residents with \$100 on their water bill upon proof of installation. A showerhead swap was also implemented. Residents can swap old high-flow showerheads for low-flow models, saving approximately 116 800 litres of water per year. Other components of the project include water meter education, a school outreach initiative for grades 4 to 6, with presentations to 30 schools, and World Water Day promotional activities. These combined initiatives produced an overall water use reduction in participating houses of 20%, or 2.18 million litres per year.
- ACAP Cape Breton created a "Pesticide Free Doctor" team, which visited 100 homes at the residents request to suggest pesticide-free solutions for common lawn and garden pests. As well, ACAP distributed 300 pesticide-free kits at local events and garden centres. These efforts resulted in greater resident awareness of the impacts of pesticide spraying on human health and the environment and of effective alternatives to pesticides, as well as a reduction in overall homeowner use of pesticides.
- In the summer of 2002, ACAP, together with the Conservation Corps of Newfoundland and Labrador, made available half-subsidized residential rain barrels. St. John's-area residents were sold 150 rain barrels to catch rainwater for landscaping/gardening use to reduce the demand on the municipal water supply. Participants were also given information on water conservation and pesticide-free gardening.

- A prominent sight along St. John's harbour in Newfoundland is ACAP's latest billboard encouraging citizens to stop flushing toxic and inappropriate substances down the drain. The message is part of a campaign on source control, which also included a seminar entitled "Exploring pollution prevention opportunities in municipal wastewater". Over 75 government staff, environmentalists, students and concerned citizens attended to discuss P2 and source control with a variety of experts from throughout Atlantic Canada.

"In the summer of 2002, ACAP, together with the Conservation Corps of Newfoundland and Labrador, made available half-subsidized residential rain barrels."



What Is Sustainable Consumption?

Sustainable consumption is defined as "the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations."¹⁰

In June 2002, Environment Canada hosted the second meeting of the North American Sustainable Consumption Alliance Workgroup. The North American Sustainable Consumption Alliance is a strategic partnership of people and organizations that are working to promote more sustainable consumption patterns in Mexico, Canada and the United States. One of the Alliance's goals is to facilitate the shaping of a common North American vision of sustainable consumption. Activity following this meeting has centred around the development of a web-based database of activities and initiatives in the area of sustainable production and consumption in North America, with the support of the Commission for Environmental Cooperation. The goal of the database is to facilitate cooperation among organizations in North America that are interested in promoting sustainable consumption, by providing information about activities or initiatives that they could replicate, support or join. At the World Summit for Sustainable Development held in Johannesburg, South Africa, in August 2002, sustainable consumption was identified as a global priority with participating Nations committing to develop a Ten Year Framework for Sustainable Consumption. This is being managed by the United Nations Environment Program.

Public Awareness Campaigns

Between 1999 and 2003, Natural Resources Canada led a multistakeholder committee in designing and implementing a national wood heat education campaign called Burn it Smart. At the World Summit for Sustainable Development, held in Johannesburg, South Africa, sustainable consumption was identified as a global priority, with participating nations committing to develop a Ten Year Framework on Sustainable Consumption, which will be managed by the United Nations Environment Programme. Similarly, under a clean air commitment made by federal, provincial and territorial officials, the CCME agreed in 1999 to cooperate on a number of initiatives to reduce air pollution, including emissions from wood-burning appliances. The campaign was created to promote safer, cleaner and more efficient wood-burning practices for those who heat their homes with wood or use it for recreational purposes. The campaign was launched nationally in September 2002. By the end of March 2003, approximately 5 800 Canadians attended one of the more than 300 workshops held in over 200 communities across Canada. Environment Canada guided implementation of the workshops in several provinces. For more information, visit the Burn it Smart website at <http://www.burnitsmart.org>. **New**

The Healthy School Program identifies indoor and outdoor air pollution sources that schools can address through policy decisions on, for example, reduction of bus and vehicle idling times, implementation of scent-free policies, greening of school properties, chemical-free pest control practices, waste reduction initiatives and energy efficiency programs. With the financial support of Environment Canada's Eco-Action program, the New Brunswick Lung Association completed a pilot project at one school and now aims to have over 20 schools involved in the program, including schools in First Nations communities. **Update**

"By the end of March 2003, approximately 5 800 Canadians attended one of the more than 300 Burn It Smart workshops held in over 200 communities across Canada."



As part of its effort to promote awareness of sustainable transportation issues, Transport Canada funds projects through the Moving On Sustainable Transportation program. The program is guided by an advisory committee consisting of representatives from Transport Canada, Environment Canada, Health Canada, Public Works and Government Services Canada and the Air Transportation Association of Canada. Since the program's inception in September 1999, approximately \$1.8 million has been allocated towards 57 sustainable transportation-focused projects that provide Canadians with practical information and tools for better application of sustainable transportation thinking to their daily lives. **New**

Transport Canada's Advanced Technology Vehicles Program promotes the adoption of sustainable transportation technology to increase public understanding of advanced technology vehicles through inspections, vehicle testing and awareness-raising events. As of March 31, 2003, the department had acquired 87 advanced technology vehicles, conducted 352 vehicle evaluations and held 76 public awareness events. It is estimated that over 3.8 million Canadians were made aware of the Advanced Technology Vehicles

ible Consumption Oslo Norway January, 1994

Program through print media, television, radio, live Internet and major events such as auto shows, conferences and other public functions. For more information, visit the Transport Canada website at <http://www.tc.gc.ca/atvp/>. **New**

Eastern Charlotte Waterways Inc., in New Brunswick, has successfully reopened Letang Harbour, a site that has been closed since the 1960s due to unacceptable bacteriological water quality, for commercial and recreational clam digging. This was accomplished through joint cooperation with the local clam diggers association, municipalities and federal and provincial agencies by reducing the inputs of sewage into the harbour by taking steps to educate the public and monitor, prevent and control possible problems in the harbour. Eastern Charlotte Waterways Inc. won the New Brunswick Leadership Award last fiscal year for its ongoing efforts to maintain the natural environment of Letang Harbour. **New**

The Community Animation Program is a joint initiative of Health Canada and Environment Canada to contribute to the sustainability and health of Canadian communities. In 2002–2003, the Community Animation Program supported several initiatives in Quebec. For example, in the area of Saguenay–Lac St-Jean, efforts are

"In 2002, the Ecology Action Centre, with the help of the Environment Canada Clinic Team, organized a vehicle emissions testing clinic in Halifax."



under way to reach and encourage over 8 600 people to adopt practices that reduce energy use and solid waste. In the Eastern Townships, efforts are focused on encouraging drivers to reduce idling time and municipal officials to adopt anti-idling by-laws. In the Beauport River area, youth are becoming involved in the preservation of water resources. **New**

In 2002, the Ecology Action Centre, with the help of the Environment Canada Clinic Team, organized a vehicle emissions testing clinic in Halifax. The clinics are an opportunity to survey motorists on driving habits, maintenance practices and awareness of the environmental effects of emissions and idling. Of the 341 vehicles tested, 309 (90.6%) passed the emissions test, while 25 (7.3%) exceeded either the hydrocarbon or carbon monoxide limits. Also in 2002, Environment Canada conducted 30 separate clinics across Canada, testing more than 5 900 vehicles, while the Miramichi River Environmental Assessment Committee hosted a vehicle emissions clinic with the New Brunswick Lung Association to promote cleaner car emissions and better mileage through tire

Canadian Environmental Protection Act (CEPA) Environmental Registry

The CEPA Environmental Registry is a comprehensive source of public information relating to activities under CEPA 1999. In addition to providing up-to-date copies of current CEPA instruments, the primary objective of the Environmental Registry is to encourage and support public participation in environmental decision-making, by facilitating access to documents arising from the administration of the Act. To access the Registry, visit <http://www.ec.gc.ca/ceparegistry/>.

inflation. In all cases, those whose vehicles failed the emissions test were given information on what might be causing the high emissions and were encouraged to have the vehicles repaired. **New**

Access to Information

The Environmental Choice[®] Program is managed and developed by TerraChoice Environmental Services Inc. on behalf of Environment Canada. The Environmental Choice[®] Program is an eco-labelling program that helps individuals, corporations and governments make informed purchasing decisions to reduce their environmental impacts. Over 3 000 brand name products in approximately 140 product categories now bear the Environmental Choice[®] Program's EcoLogo, including products such as tires, cleaners, office equipment and paints, as well as services such as printing and carwashes. Recently, a certification criteria document for renewable low-impact electricity was developed for the program. For more information, visit the Environmental Choice[®] Program website at <http://www.environmentalchoice.com>.

The Canadian Pollution Prevention Information Clearinghouse is an Internet tool that links Canadians with the resources they need to practise or support P2. It provides access to over 1 400 P2 materials, such as technical reports, guides, regulations and training materials. The Canadian Pollution Prevention Success Stories website recognizes Canadian companies and organizations that have effectively implemented P2 in their business operations. Currently, the website highlights the P2 accomplishments of over 95 businesses. Environment Canada is responsible for the growth and maintenance of both these websites, which continue to provide Canadians with excellent access to P2 information. For more information, visit the Canadian Pollution Prevention Information Clearinghouse website at

<http://www.ec.gc.ca/cppic> or the Canadian Pollution Prevention Success Stories website at <http://www.ec.gc.ca/pp>.

Update

The sixth annual Canadian Pollution Prevention Roundtable was held in Quebec City in April 2002. The Roundtable is a recognized opportunity to strengthen partnerships and advance P2. Program areas included P2 and Industrial Sectors, Municipal P2, Small Business P2 Programs, Government Leadership, Communication and Program Delivery and Making Connections between P2 and Environmental Management Strategies. Some noteworthy presentations included Collecting National P2 Data, Municipal Wastewater Effluents, Connecting P2 and Environmental Management Systems and Building a North American Sustainable Consumption Alliance. Over 140 participants, representing businesses, consultants, universities, governments, labour, youth and non-government organizations, discussed P2 issues and celebrated Canadian achievements. The Roundtable experienced its best international representation in its six-year life, with eight participants representing the United States and Mexico. Two workgroups, the Municipal P2 and P2 Planning, met at the Roundtable to discuss common P2 interests and collaborate on future activities. With support from Environment Canada, the Canadian Centre for Pollution Prevention, a non-profit organization, coordinates the Roundtable. For more information, visit the Canadian Centre for Pollution Prevention website at <http://www.c2p2online.com/CPPR>. **Update**

Addressing Climate Change

The Government of Canada's 2002 Climate Change Plan sets out a three-step approach for achieving Canada's climate change objective of reducing annual GHG emissions by 240 megatonnes. First, there are the investments to date that will address one-third of the total reduction (80 megatonnes). Second, it articulates a strategy for a further 100-megatonne reduction. Finally, it outlines a number of current and potential actions that should enable Canada to address the remaining 60-megatonne reduction. The Plan identifies action in five broad areas: transportation, housing and commercial/institutional buildings, large industrial emitters, SMEs, and the international market. For more information, visit the Government of Canada's climate change website at <http://www.climatechange.gc.ca>. **Update**

The international ENERGY STAR® symbol is a simple way for consumers to identify products that are among the most energy-efficient on the market. Only manufacturers and retailers whose products meet the ENERGY STAR criteria can label their products with this symbol. In Canada, Natural Resources Canada's Office of Energy Efficiency administers and promotes the international ENERGY STAR symbol for a wide range of energy-using products sold in Canada. By choosing an ENERGY STAR-qualified appliance, consumers can save up to 260 kilowatt-hours¹¹ of electricity per year. That's more than enough energy to run a dishwasher 100 times. In a survey done in the fall of 2002, 15% of respondents indicated unaided recognition of the ENERGY STAR symbol, while 27% were able to recognize it with retailer assistance. Promotional activities have involved joint marketing efforts with equipment distributors,

"By choosing an ENERGY STAR®-qualified appliance, consumers can save up to 260 kilowatt-hours of electricity per year."



retailers, different levels of government and industry groups. For more information on the products available, visit the ENERGY STAR website at <http://energystar.gc.ca>. **Update**

The EnerGuide for Houses Initiative encourages Canadians to improve the energy efficiency of their homes when undertaking home renovation and maintenance projects. As of March 2003, over 17 500 houses were audited and labelled, and the average energy consumption of homes improved by 19% or 2.4 tonnes of carbon dioxide reduced per home per year on average. Typical upgrades can include increased insulation in walls and attic, basement insulation, improved windows and doors, furnace efficiency upgrades, hot water efficiency upgrades, air sealing and installation of a heat recovery ventilation unit. Natural Resources Canada provides national coordination, technical support, software tools and training for the home energy audits. For more information, visit the EnerGuide for Houses website at <http://oee.nrcan.gc.ca/houses-maisons>. **Update**

Update

Climadapt Network

Environment Canada—Atlantic Region is a member of a network of federal, provincial, municipal and private interests developed in Nova Scotia to promote awareness of and action on how to adjust to and accommodate climate changes that are occurring and will occur in the future (temperature changes, more extreme weather events, etc.). Some of the main objectives include incorporating Climadapt guidelines into environmental assessments (currently under contract with the Canadian Environmental Assessment Agency), factoring climate change adaptation risks into development guidelines and insurance companies' premium ratings, promoting modification of building codes and public outreach programming. Such early action should improve design and development decisions that will minimize adverse environmental impacts, rather than require future remedies. This is a long-term P2 initiative.

Engaging Youth

In 2002–2003, Environment Canada — Ontario Region developed a P2 education campaign that involved a number of demonstrations aimed at educating schoolchildren about water pollution and

"In 2002–2003, the YRTE met with the federal Minister of the Environment on Parliament Hill and brought forth its proposal for a Youth Engagement Strategy on Climate Change."



the importance of preventing groundwater contamination. Specific events included the Children's Water Festival in York Region, where over 4 000 students (grades 2 to 5) participated in the four-day educational event. P2 was also integrated into the Great Art for Great Lakes program. **New**

Started in 1997, the Youth Round Table on the Environment (YRTE) is an active, non-partisan forum that brings together young Canadians of diverse regional, cultural, educational and linguistic backgrounds. During a one-year term, which begins in September, the group, which includes up to 18 young people, meets up to three times a year to provide input on Environment Canada's programs and policies and to advise on ways to make these programs more accessible to youth. In 2002–2003, the YRTE met with the federal Minister of the Environment on Parliament Hill and brought forth its proposal for a Youth Engagement Strategy on Climate Change. The YRTE also had discussions on the Environmental Bill of Rights and on integrating a youth position at the National Round Table on the Environment and the Economy. For the coming year, 2003–2004, the YRTE will be focusing on issues such as Environmental and Social Justice, Greening Economics, Stewardship Education, Living Spaces Both Urban and Rural and Climate Change. The YRTE prepares an annual report, which is available on the Environment Canada website at <http://www.ec.gc.ca/youth/>. **Update**

The Computers for Schools program collects, repairs and refurbishes donated surplus computers from government and private sector sources and distributes them to schools. The program, managed by Industry Canada, has a total of 69 centres throughout Canada where computers are cleaned, refurbished and prepared for delivery or recycled if unusable. The Computers for Schools program has met its "Millennium Challenge" of delivering more than 250 000 computers to schools and libraries throughout Canada at no

charge. The program's current goal is to deliver more than 60 000 quality computers each year to Canadian schools and libraries. The Computers for Schools program is considered a "best practices" program for keeping often potentially toxic material out of landfill sites. To view success stories across Canada, visit the Computers for Schools website at <http://cfs-ope.ic.gc.ca/>.

Update

"The Computers for Schools program's current goal is to deliver more than 60 000 quality computers each year to Canadian schools and libraries."



Upcoming Projects

The National Office of Pollution Prevention is currently developing a resource package for Canadian elementary and secondary school educators. The package includes complete lesson plans, student activities, evaluation materials and resources for background information. The lesson plans link to provincial and territorial curriculum standards to facilitate easy implementation in existing courses and units of study.

The following table summarizes the linkages to programs and initiatives undertaken in P2 under the federal government's action plan on P2 with individual Canadians.

Tracking Progress Against Pollution Prevention—A Federal Strategy for Action

Goal: Provide access to the information and tools necessary to implement pollution prevention practices.

Actions	Status	Examples
1. Provide information that illustrates how P2 fits into daily activities.	Ongoing	<ul style="list-style-type: none"> • Canadian Pollution Prevention Success Stories • Eco-Action program • Canadian Centre for Pollution Prevention • Youth Round Table on the Environment
2. Create a national P2 clearinghouse.	Complete	<ul style="list-style-type: none"> • Canadian Pollution Prevention Information Clearinghouse
3. Encourage consumers to use their purchasing power to promote P2.	Ongoing	<ul style="list-style-type: none"> • Environmental Choice Program • ENERGY STAR® program • EnerGuide for Houses

Progress with the International Community

Federal pollution prevention strategy goal: Participate in international pollution prevention initiatives.

International Agreements and Technology Transfer

In December 2002, the Government of Canada announced its ratification of the Kyoto Protocol to the United Nations Framework Convention on Climate Change. In December 1997, Canada and more than 160 other countries met in Kyoto, Japan, and agreed to targets to reduce GHG emissions. The agreement that set out those targets, and the options available to countries to achieve them, is known as the Kyoto Protocol. Canada's target is to reduce its GHG emissions to 6% below 1990 levels by the period between 2008 and 2012. **Update**

In May 2001, the Government of Canada, in keeping with its obligation under the Stockholm Convention on Persistent Organic Pollutants (POPs)¹², provided \$20 million to the Canada POPs Fund. Through the Canadian International Development Agency (CIDA), the Canada POPs Fund provides financial support, technical expertise, knowledge and access to technology that is necessary to assist, encourage and equip developing countries and countries with economies in transition to build their own capacity to reduce or eliminate releases of POPs. Even though Canada has banned or restricted their use, most POPs of concern are transported from foreign sources through the atmosphere into Canada, where they accumulate in our food chain. Because of atmospheric circulation, POPs travel great distances from their sources, posing significant risks to the health of Canadians, particularly northern Aboriginal populations, due to their dependency on traditional foods. Now entering its third year, the fund has supported over 70 projects. It has helped establish the Africa Stockpile Initiative, which will help African countries to inventory, store and destroy obsolete

pesticides. For more information on the Stockholm Convention, visit the United Nations Environment Programme website at <http://www.chem.unep.ch/pops/default.html>. **Update**

CIDA manages the five-year, \$100 million Climate Change Development Fund on behalf of the Government of Canada. Through this fund, CIDA promotes, facilitates and/or finances the transfer of environmentally sound technologies that address the causes and effects of climate change in developing countries, while at the same time contributing to sustainable development and poverty reduction. The fund's four programming areas are emission reductions, carbon sequestration, adaptation to adverse impacts of climate change and core capacity-building. Current projects that will make a significant contribution to P2 include upgrading the fuel combustion systems used in the brick-making sector in Egypt in an effort to reduce air pollution; reducing GHG emissions through energy management in Brazilian industry; the promotion and use of fly ash (a waste product generated by coal-burning plants) in concrete production in India, thereby reducing the use of Portland cement, a high carbon dioxide-generating substance; promoting the use of renewable energies in several countries in Asia and the Americas; and reducing industrial GHG emissions in South Africa and Mozambique. **Update**

Foreign Affairs and International Trade created the Clean Development Mechanism and Joint Implementation Office in 1998. The Office assists Canadian companies in exporting climate change technology and expertise as well as obtaining emissions reduction credits. To date, the program is on target to achieve its long-term objective of reducing GHG emissions by 20 megatonnes annually. **Update**

Canada works in cooperation with the governments of Mexico and the United States on how to reduce the exposure of North American ecosystems to mercury through the prevention and reduction of releases of mercury to the environment. Canada continues to play a leading role in the development and implementation of the North American Regional Action Plan on Mercury. For more information, visit Environment Canada's website at <http://www.ec.gc.ca/mercury>. **New**

As part of the Climate Change Action Fund, Technology Early Action Measures (TEAM) offers support to federal programs that fund technology projects to reduce GHG emissions nationally and internationally, while sustaining economic and social development. TEAM began with an initial investment of \$60 million over three years (1998–2001) from the Climate Change Action Fund and has been extended for another three years, through 2003–2004, with an additional \$35 million. TEAM will assign top priority to projects that demonstrate significant financial partnering with a number of interested parties, such as the private sector, provinces and municipalities. For a listing of TEAM delivery projects, visit the Government of Canada's Climate Change website at http://www.climatechange.gc.ca/english/actions/action_fund/techno.shtml. **Update**

To establish the best available practices in life cycle assessment, the United Nations Environment Programme and the Society of Environmental Toxicology and Chemistry hosted an international workshop on life cycle assessment in April 2002. This workshop was also sponsored by Natural Resources Canada, Asia-Pacific Economic Cooperation and the International Council of Metals and was attended by 60 experts. Life cycle assessment can be used to identify opportunities for P2 by comparing

¹²The Stockholm Convention targets a list of 12 POPs known as the "dirty dozen." These POPs are in three broad categories: a) industrial chemicals (e.g., polychlorinated biphenyls); b) by-products and contaminants (e.g., dioxins and furans); and c) pesticides (e.g., DDT, chlordane).

the potential environmental impact of the current situation with an alternative. Various models used to calculate the potential impacts of metal production and emissions were discussed in order to identify gaps and suggest improvements. Natural Resources Canada provided scientific direction and organizational logistics support on this project. The proceedings of the conference included 36 peer-reviewed scientific papers. **Update**

Cities Planning for Long-term Urban Sustainability, or CitiesPLUS, is the name of the international competition for urban sustainability. The intent of the competition organizers was to build on the potential of natural gas and its technologies to meet growing energy needs, mitigate climate change and create alliances with other industries and sectors to meet the challenges of sustainable development. The competition involved nine teams from around the world, each preparing a staged 100-year plan for a major metropolitan area. CitiesPLUS involved various scenarios and workshops to integrate the results into a regional sustainable urban systems plan in order to identify policies and make recommendations. In 2002–2003, Western Economic Diversification Canada supported CitiesPLUS. For more information, visit the CitiesPLUS website at <http://www.citiesplus.ca>. **New**

International Pollution Prevention Activities

The Canadian Pollution Prevention Roundtable formed an international partnership with the United States Pollution Prevention Roundtable and the Mexican Pollution Prevention Roundtable to promote P2 policy, capacity-building and environmental leadership efforts throughout North America. This partnership, a mechanism to build relationships and facilitate collaboration and coordination, will contribute to the development of a seamless global network of easily accessible, high-quality cleaner production information. Throughout 2002–2003, with financial support from the North American Commission for Environmental Cooperation, the chairs and delegates of the North American P2 roundtables, including Environment Canada and the Canadian Centre for Pollution Prevention, met regularly to identify initiatives of common interest. Efforts have been focused on developing an EMS Workshop Session, a P2 Policy document and a workplan for a corporate environmental stewardship program in the electronics sector. At the end of 2002–2003, a proposal was submitted to CIDA to explore the potential for expanding the partnership into a Hemispheric Alliance of Pollution Prevention by developing stronger linkages with the São Paulo Cleaner Production Roundtable in Brazil. **Update**

The Great Lakes Regional Pollution Prevention Roundtable is a networking organization dedicated to promoting information exchange opportunities between Canada and the United States. In August 2002, Environment Canada–Ontario Region hosted the annual Great Lakes Regional Pollution Prevention Roundtable summer conference in Toronto. The conference was attended by 140 P2 practitioners from the United States and Canada. P2 training for local government officials was offered, as well as site tours of DaimlerChrysler's Brampton assembly plant and the Royal York Hotel's environmental program. **New**

In 2002–2003, Foreign Affairs and International Trade undertook a project to install solar water heaters at all of Canada's staff quarters in Dar-es-Salaam in Tanzania, Africa. This initiative will significantly reduce energy consumption and will result in cost savings, especially as energy prices continue to rise. **New**

The Pollution Prevention World Information Network (P2WIN) connects and serves as a virtual meeting place for P2 roundtables, cleaner production networks and other organizations committed to advancing cleaner production and sustainability issues. It is an evolving network—a partnership between governments, the private sector, non-government organizations and academics that links and supports the P2 community while reaching out to new partners, such as organizations dealing with energy efficiency, finance and sustainable consumption. The initiative commits roundtables in the Americas, Asia-Pacific, Africa, Eastern and Central Europe and China to creating a permanent network that encourages ideas and innovation—a true Roundtable of Roundtables. In 2002–2003, three P2WIN workshops were delivered to members of the Canadian, Mexican and U.S. P2 roundtables. The workshops provided background information on P2WIN, highlighting some of the services and features, as well as facilitated a discussion from a user's perspective on what the expectations are for P2WIN. Work is now under way to strengthen the North American node within P2WIN by addressing the feedback received from the workshops. For more information, visit the P2WIN website at <http://www.p2win.org/>.

Canada's Participation in the World Summit on Sustainable Development

The 2002 World Summit on Sustainable Development, which took place in Johannesburg, South Africa, brought together people from around the world to focus global attention on actions to achieve sustainable development. In preparing for the World Summit on Sustainable Development, the report "Progress Towards a Sustainable Development Strategy for the Government of Canada" was produced. This document provides an overview of the federal government's sustainable development initiatives, a synthesis of current departmental sustainable development strategies and a vision and principles for moving forward.

A Political Declaration entitled the "The Johannesburg Declaration on Sustainable Development" was negotiated at the Summit. The declaration affirms the central importance of sustainable development to the world community and calls for united action by governments and all partners to address poverty and reduce global divides. "A Plan of Implementation" was also created, which outlines actions to be taken in specific areas of sustainability. For example, one element of the plan of implementation is a commitment by participating nations to a "10 Year Framework for Sustainable Consumption." Environment Canada is the point of contact for the program. Canada also committed to a number of partnerships for sustainable development, which consist of a series of commitments and action-oriented coalitions to further the implementation of sustainable development. For further information, visit the World Summit on Sustainable Development website at <http://www.wssd-smdd.gc.ca/>. **Update**

The following table summarizes the linkages to programs and initiatives undertaken in P2 under the federal government's action plan on P2 with the international community.

Tracking Progress Against Pollution Prevention—A Federal Strategy for Action

Goal: Participate in international P2 initiatives.

Actions	Status	Examples
1. Stimulate a shift to P2 in international organizations.	Ongoing	<ul style="list-style-type: none"> G-8 Summit United Nations Environment Programme Pollution Prevention World Information Network
2. Incorporate P2 into international standards.	Ongoing	<ul style="list-style-type: none"> Canada-China cooperative project to share P2 planning information
3. Advance P2 through international protocols and agreements.	Ongoing	<ul style="list-style-type: none"> Canada-U.S. Air Quality Agreement Kyoto Protocol North American Pollution Prevention Partnership POPs agreement

Trends and Future Opportunities

"Thinking globally—acting strategically": Canada continues with its commitment to place pollution prevention in the mainstream of daily decision-making.

Canada's strong commitment to the global issue of climate change was solidified with the 2002 ratification of the Kyoto Protocol to the United Nations Framework Convention on Climate Change. The Climate Change Plan for Canada, a three-step approach for achieving Canada's climate change objectives, includes a range of investments, outreach and financial incentives. The federal Pollution Prevention Strategy is well positioned for catalyzing climate change action by promoting the use of processes, practices, materials, products, substances and energy that avoid or minimize the creation of pollutants and waste, such as GHG emissions. International initiatives such as P2WIN will provide Canada with a forum to share its successes and challenges on GHG emission reduction, as well as learn from other nations on what improvements are possible.

This report, *Progress in Pollution Prevention 2002–2003*, demonstrates the Government of Canada's commitment to "institutionalize pollution prevention across all federal government activities," as stated in *Pollution Prevention—A Federal Strategy for Action*.

The Government of Canada remains committed to responding to the priorities of Canadians: protecting the environment and human health through strong and innovative partnerships. The Government of Canada will continue to work in partnership with other governments, Aboriginal communities, businesses, academia and all Canadians to promote cleaner air and water, to reduce risks from environmental threats and hazards and to achieve climate change goals.

Members of P2C2 have demonstrated leadership in developing and setting best practices as well as specific performance measures through policies, programs and internal EMSs. P2 is an integral part of this effort, and the organizational learning process associated with collecting performance data and reporting results

will remain a priority. To further enhance this learning process, all federal departments are encouraged to record and track the results of their P2 efforts during the year for inclusion in upcoming progress reports.

Acting strategically on Canada-wide issues, the CCME will remain the forum for facilitating federal, provincial and territorial collaboration on environmental priorities of national concern. Through the CCME, Environment Canada is working with its provincial and territorial counterparts on air and water quality. Health department officials are also involved in initiatives on a case-by-case basis, recognizing the close link between human health and the environment.

Budget 2003 provides Environment Canada with \$75 million over the next two years to address the legacy of unassessed chemicals in the Canadian marketplace. The Toxics Management Process is reflective of the new approaches being taken to develop management measures, including preventative or control instruments for substances that are determined to be toxic under CEPA 1999.

In Canada, there are several voluntary public—private challenge programs that address issues such as energy efficiency, smog, toxic emissions, wastewater effluent and GHG emissions. Lessons learned from these programs are now being used as a basis for renewing and strengthening the commitment to P2 in a manner that will significantly reduce environmental impact and encourage innovation across a wider range of business activities in Canada. In the case of SMEs, there is a renewed effort to meet the challenges associated with reaching, mobilizing and engaging this significant sector of the Canadian economy in environmental activities.

In 2002, a national survey commissioned by the Sustainability Network found that the majority of Canadians believe they need to know more to make environmentally

informed decisions. Only 4% of Canadians felt they know all they need to know about the environment to make day-to-day decisions, 28% say they know most of what they need to know and 66% knew either some or very little. Canadians need strong leadership from government to highlight the breadth of activities that help to protect the environment. The goal of fostering informed decision-making on sustainable activities is achievable if leadership is provided to generate, acquire and disseminate knowledge to deliver innovative and responsive services internally and to Canadians. Access to information, tools and funding is essential to encourage people to make responsible decisions about the environment, ensuring that the environment is thereby sustained for the benefit of present and future generations.

The Government of Canada welcomes all Canadians to become active in "thinking globally—acting locally" by furthering the P2 approach. By continuing with a coordinated effort towards the goal of avoiding the creation of pollutants, Canadians will protect the health of the environment and secure a sustainable economy for generations to come.

Working Towards Results: Pollution Prevention—A Federal Strategy for Action

Target Sector	Strategy Goal	Trends and Future Opportunities
Federal government	Institutionalize P2 across all federal government activities.	<ul style="list-style-type: none"> • Trend: Strengthened partnerships between federal departments and greater emphasis on integrating a P2 approach within policies, programs and tools. • Future Opportunity: Further expand federal department participation in upcoming Progress in Pollution Prevention Reports and ensure that measurable results of all projects are identified.
Other governments	Foster a national P2 effort.	<ul style="list-style-type: none"> • Trend: Developing Canada-wide Standards. • Future Opportunity: Assisting municipalities in the identification and implementation of P2 approaches.
Private sector	Achieve a climate in which P2 becomes a major consideration in private sector activities.	<ul style="list-style-type: none"> • Trend: Continued commitment to public-private pollutant reduction challenge programs. • Future Opportunity: Improving the environmental performance of SMEs, with more emphasis on product-focused policies.
All Canadians	Provide access to the information and tools necessary to implement P2 practices.	<ul style="list-style-type: none"> • Trend: Increased provision of P2 information and successes. • Future Opportunity: Enhancing the consumer's ability to make sustainable consumption choices.
International community	Participate in international P2 initiatives.	<ul style="list-style-type: none"> • Trend: Sharing information on P2 activities. • Future Opportunity: Building the capacity of developing countries to "leapfrog" to best practices.

To view *Pollution Prevention — A Federal Strategy for Action*, visit <http://www.ec.gc.ca/pollution/strategy>

On the Internet, view this report at <http://www.ec.gc.ca/p2progress>

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List of Acronyms

ACAP	Atlantic Coastal Action Program
ATF	Alternative Transportation Fuel
B.-C.	British Columbia
CCME	Canadian Council of Ministers of the Environment
CEPA 1999	<i>Canadian Environmental Protection Act, 1999</i>
CETAC	Canadian Environmental Technology Advancement Centres
CFIA	Canadian Food Inspection Agency
CIDA	Canadian International Development Agency
CIPEC	Canadian Industry Program for Energy Conservation
CitiesPLUS	Cities Planning for Long-term Urban Sustainability
CRC	Communications Research Centre Canada
CSC	Correctional Services Canada
E2	Environmental Emergency
EA	Environmental Assessment
EERP	Environmental Emergency Response Plan
EMS	Environmental Management System
EPA	Environmental Performance Agreement
E-85	85% Ethanol
FBI	Federal Buildings Initiative
FCEMS	Federal Committee on Environmental Management Systems
GHG	Greenhouse Gas
HRDC	Human Resources Development Canada
ISO	International Organization for Standardization
MARPAC	Maritime Forces Pacific (National Defence)
NPA	National Programme of Action for the Protection of the Marine Environment from Land-based Activities
NPRI	National Pollutant Release Inventory
ODS	Ozone-Depleting Substance
P2	Pollution Prevention
P2C2	Pollution Prevention Coordinating Committee
P2WIN	Pollution Prevention World Information Network
PM	Particulate Matter
POPs	Persistent Organic Pollutants
PSL1	First Priority Substances List
PSL2	Second Priority Substances List
RCMP	Royal Canadian Mounted Police
SDGO	Sustainable Development in Government Operations
SEPE	Survey of Environmental Protection Expenditures
SMEs	Small and Medium-Sized Enterprises
TEAM	Technology Early Action Measures
VOC	Volatile Organic Compound
YRTE	Youth Round Table on the Environment

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